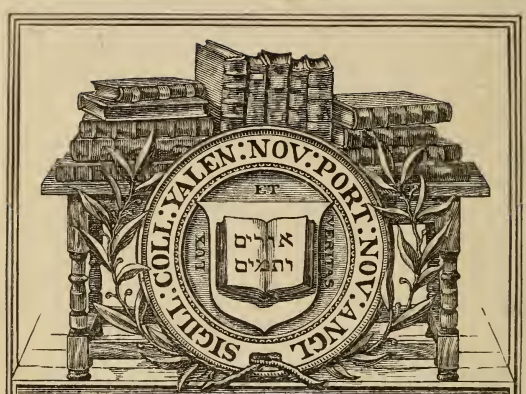

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WEAK LUNGS,

AND

HOW TO MAKE THEM STRONG.

OR

DISEASES OF THE ORGANS OF THE CHEST, WITH THEIR HOME TREATMENT BY THE MOVEMENT CURE.

By DIO LEWIS, M. D.,

Proprietor of the Essex Street Gymnasium, Boston; Professor of Physical Culture in the Boston Normal Institute; Author of the "New Gymnastics for Men, Women and Children"; and Physician-in-Chief of the "Boston Movement Cure for Consumptive Invalids."

PROFUSELY ILLUSTRATED.

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TO

MY WIFE,

WHOSE COMPLETE DEVOTION TO MYSELF AND TO OUR MISSION,

HAS EVER BEEN THE MAIN SPRING OF MY

PROFESSIONAL LABORS,

AND WHOSE HEALTH HAS BEEN RESTORED BY THE RULES HERE GIVEN,

I DEDICATE THIS WORK.

PREFACE.

Nearly twenty years ago there came under my professional care a consumptive, for whose recovery I felt the deepest solicitude. Since then I have treated many invalids, of the same class, for whom my tenderest sympathies have been awakened. Twelve years since my wife's health failed. Obviously, it was a case of consumption. Two sisters had died of the malady. In the persons of my dearest friends I have felt the most intense interest in pulmonary consumption.

For many years I employed medicines in the treatment of the malady. During the last ten years, abandoning all drugs, I have depended upon the natural health agents, and more particularly upon exercise. At length, I feel impelled to print the results of my observations and experience. It would not be difficult to

make a large book. For the present I submit a small one. It is for the people. They will find in it no theories, no technicalities.

I can scarcely hope it will interest my professional brethren; but I do fondly hope that thousands who need its advice, will study its pages, not only with interest, but with substantial profit.

This book seeks to guide those with weak lungs, in the most advantageous use of temperance, pure air, sunshine, *exercise*, and other hygienic agents. Happily for my patients and myself, there can be no controversy over its suggestions.

In preparing this volume, I have been encouraged by the consciousness that I was giving voice to a conviction rapidly maturing among the best physicians. This conviction is frankly expressed by Dr. James Blake, in the following words:—

"Now I think we may conscientiously tell our "consumptive patients, that when living out in "the mountain air, they are doing far more to "re-establish their health, than anything we can "do for them."

In fact, this work is designed to put into available form the advice which the wisest of my

profession constantly give their consumptive patients. It condemns medicines. But, in this it only echoes the voice of nearly every experienced physician, whose pocket permits an unbiased judgment. Every doctor advises exercise. But all exercises are not equally good. The book I offer you, is, in great part, filled with simple directions for the practice of those exercises which possess peculiar value for consumptive invalids. The province of the "Movement Cure" is, in brief, the application of special exercises to special needs.

I may expect too much, but I cherish a profound satisfaction in believing, that many, who have enlisted in the army of consumptives, may, by reading this little work, be induced to seek an honorable discharge.

In the preparation of this work, especially in the description of phthisis, I am indebted to Drs. Clark, Thompson, Morton, and other excellent authorities, for valuable suggestions.

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GENERAL REMARKS.

The highest medical authorities of this century, have expressed the opinion that tubercular disease of the various tissues is justly charged with one-third of the deaths among the youth and adults of the civilized peoples. The seat of this tubercular disease, is, in great part, in the lungs.

Before the taint is localized, it is comparatively easy to remove it. If in regard to most other maladies, it may be said that "an ounce of prevention is worth a pound of cure," in reference to tubercular consumption, it may be truly declared that an ounce of prevention is worth tuns of cure.

Had the talent and time which have been given to the treatment of consumption, been bestowed upon its causes and prevention, the per centage of mortality from this dreaded disease would have been greatly reduced.

Whatever other merit this work may lack, it shall at least possess this one, namely, an unreserved and earnest discussion of "the ounce of prevention."

ORIGIN OF CONSUMPTION. Genuine consumption does not originate in a cold, an inflammation, or a hemorrhage, but in tubercles.

And these tubercles are only secondary causes. The primary cause is a certain morbid condition of the organism, known as the tubercular or scrofulous diathesis.

This morbid condition of the general system is sometimes hereditary, but much more frequently the result of unphysiological habits. Those cases to which our own errors give rise, may be prevented; and a large proportion of those who have inherited consumptive taint, may, by a wise hygiene, be saved.

A VITAL POINT. A radical error underlies nearly all medical treatment.

A salt rheum appears on the hand. An ignorant doctor says, "It is a disease of the skin." An ointment is applied. The eruption disappears.

An ulcer appears on the ankle. The doctor says, "It is a disease of the ankle." He applies a salve. The sore disappears.

The ear discharges. "The membranes of the ear passage are diseased," says the physician, and he prescribes an injection. The discharge is arrested.

A case of nasal catarrh is presented. The medical

man says, "this nose is sick." A snuff is prescribed. The discharge ceases.

In each of these cases the doctor has entirely misapprehended the seat of the malady. Of course his prescription is a blunder.

Salt rheum is not a disease of the skin. It is a disease of the system, showing itself in the skin. The ulcer is not a disease of the ankle. It is a disease of the system, showing itself at the ankle.

A ship's crew is seized with some fearful malady. They hang out a flag of distress. Another ship passes near the infected vessel. Its captain discovers the flag of distress. A boat's crew is sent to cut it down. The captain turns to his passengers with the triumphant exclamation, "We have saved them! All signs of distress have disappeared!"

A human body is diseased in every part. A flag of distress is hung out in the form of an ulcer at the ankle. Some ignorant physician sees it. He covers it with a salve, which compels it to close. Then he cries, "See, it is all gone!"

Another illustration: The ulcer upon the ankle is driven from that place by an ointment. Soon it appears in the lungs. The doctor cannot get at it there, with his ointment, and resorts to inhalation. He is still determined to apply the drug to the local manifestation. Pulmonary consumption is not a disease of the lungs.

It first pervades every part of every tissue of the entire organism. At length it assumes local expression in the lungs. How utterly blind to apply a drug to the ulcer, either when it is on the ankle, or in the lungs; to dry it up, or drive it away, while the real disease is left in the system. How infinitely more sensible, with sunshine, fresh air, bathing, nutritious food, cheerful society, and wisely-directed exercises, to remove the systemic morbid conditions.

It may be said that when the disease attacks the lungs, it must be driven from that vital organ at any sacrifice. I reply, if the drug vapors which are inhaled could disperse the tuberculous deposit—which is impossible—the tubercle could not be transferred to any other internal organ where it would do less harm. No other internal organ can bear tuberculous deposit or ulceration with less danger to life. Of this something is said in another part of this work.

In 1847, two brothers—bank officers—afflicted with chronic inflammation of the eyes, came under my care. I repeatedly prescribed for them, but the eyes were no better. Indeed they had little hope, for during their years of suffering, many physicians had treated them without avail. At length I told them there was no hope but in absence from their business, and such recreation as would elevate the general tone. A few months of hunting, fishing, and great enjoyment in

the country, sufficed to remove the redness and weakness from their eyes. As I have argued, the disease was not one of the eyes, but of the entire system, which had assumed a local expression.

What I have said is not new. This dependence of local upon general disease is a common idea with the people. A young man begins business with a large capital. He falls into dissipation. In ten years it exhausts his fortune. When at last we see him beg for bread, we do not say this exhibition of his poverty is his financial disease. His financial *constitution* has been ruined. The begging is only an unpleasant exhibition of that ruin. During this course of dissipation, the young man, in addition to the exhaustion of his fortune, ruins his health. His lungs fall into consumption. An unskilled doctor may tell you it is disease of the lungs. But it is no more disease of the lungs, than was begging the man's financial malady. In either case, the apparent disease is only an exhibition of the constitutional malady.

In brief, a local disease is an impossibility. Every disease must be systemic before it can assume any local expression. Or, in other words, every local pathological manifestation is an expression of systemic pathological conditions.

Now what is the practical value of this argument? I reply: So long as people believe bronchitis to be

a disease of the throat, or consumption a disease of the lungs, so long will they labor under the hallucination that a cure is to be found in applications to these parts. But when they are convinced that these diseases are local expressions of morbid conditions, pervading the whole organism, then whatever will invigorate their general health, as nature's hygienic agents, will receive their first and principal attention.

If this were theory, without practical bearings, I should apologize for its introduction. But as the idea of local disease leads to innumerable blunders in medical treatment, it is necessary to expose it. In this work, "Weak Lungs, and How to Make Them Strong," designed for the people, it is of the first importance fully to explain the dependence of the lungs upon the general vitality. So prevalent is the idea of the local character of disease, that I deemed it necessary to make the explanation extremely simple, by multiplied illustrations.

A gentleman from another State, was with me to be treated for rheumatism. He thought the disease was entirely confined to his legs. When one of the assistants read over his prescription, and the patient observed numerous exercises for the arms and trunk, he constantly exclaimed, "Why, he has forgotten that the disease is in my legs!"

An intelligent lady said, "I have a severe neuralgia

just over this eye, with soreness in the pit of the stomach, and cold feet; beside these, I am perfectly well."

THE SCROFULOUS OR TUBERCULOUS DIATHESIS.

By this is meant that peculiar morbid condition of the system which gives rise to the deposition of tuberculous matter, under certain exciting causes. This taint is sometimes inherited, but it may be acquired at any time from infancy to old age.

Signs of the Tubercular or Scrofulous Diathesis. The child has full cheeks, with pale, pasty complexion. If the complexion be dark, the color is sallow; if fair, the color is wax-like; the pupils are large, eyelashes long, the face is often very sweet. In infancy the child is generally large, flesh soft, head large, trunk small, belly full, digestion imperfect, bowels irregular, urine turbid, skin very soft, or, dry and harsh, with scaly eruption; the perspiration from the feet has a peculiar fetid odor.

The most important feature is defective digestion. Dr. Todd calls it "Strumous Dyspepsia." In his opinion "it presents a more characteristic feature of this habit of body than any physiognomical portrait which has yet been drawn of it. In this respect it is

more to be depended on than either the fine skin, the clear delicate complexion, the light hair, large blue eyes of the one, or the dull, swarthy-colored skin, sallow complexion, swollen countenance, dark hair, and tumid lips of the other. It betokens indeed little familiarity with scrofula to connect it with any particular temperament, for it belongs to all temperaments,—to the sanguine, phlegmatic, nervous, melancholic, and to all their varieties and combinations. But upon whatever temperament the disordered habit which we call Scrofula, may engraft itself, we venture to say that this form of dyspepsia, will also there be found; and, therefore, being constantly present with it, preceeding and accompanying the various symptoms which issue from it, it would be contrary to all reason to refuse to it an important share in the development of this disordered habit, and in the production of the local affections which have hitherto too much engrossed the attention, to the exclusion of a proper consideration of the constitutional disease."

The leading characteristics of Strumous dyspepsia, are, unnatural redness of tongue at the margin and extremity. Sometimes it is covered with a dirty coat. The appetite is capricious. There is considerable thirst and bad breath. The evacuations have a clay-like appearance. There is generally a languor and disinclination to take exercise; irritability; frequent colds on

slight exposure; sore throat; enlarged tonsils, and frequent inflammation of the eyelids.

While the indications here enumerated are the prominent ones, they are by no means all present in each case.

SYMPTOMS OF CONSUMPTION.

First Stage. Cough is generally the first symptom. For a time there may be but one or two slight efforts upon rising in the morning. Then it recurs during the day. And now again after any effort which hurries the breathing, and not unfrequently upon lying down at night. With the morning cough there soon comes slight expectoration, scarcely thicker than saliva. The patient assures you it comes from his throat. There is short breathing after any considerable exertion, with a sense of tightness in the chest. The pulse becomes quicker. This is especially noticeable in the evening, and after a full meal. Chilliness in the evening, followed by a slight fever, with heat in the palms of the hands and soles of the feet, which continues during the night. After some time perspiration comes on, generally towards morning. The patient is disturbed by a cough during the night.

The patient's general aspect is changed. His face

is pale and languid in the morning, and flushed in the evening. He is perceptibly thinner. His gait and voice indicate loss of vitality.

If these symptoms come on in the spring, and the patient, taking warning, seeks the country and out door exercise, he soon improves, and believes with his friends that he is restored; but the autumn undeceives them.

Usually in this early stage, if the collar bone, or the space below it, be rapped, a dull sound will be perceived, generally more on one side than the other. If the ear be applied, it will be found that on the duller side the respiratory murmur is less soft and the resonance of the voice greater. This generally leaves no doubt of tubercular disease.

Second Stage. The expectoration which had the appearance of saliva, now begins to contain small yellow lumps of considerable consistency, and perhaps little points or streaks of blood. The evening chills are more marked; the morning perspiration more profuse. The pulse is rapid, even in the morning, and the respiration hurried even when the patient is at rest. Emaciation and soft muscle attract attention. The face is very pale in the morning, and bears a circumscribed flush of the cheek—one or both—in the afternoon or evening. Percussion and auscultation now reveal marked progress in the morbid changes.

THIRD STAGE. This is often spoken of as the colliquative stage, on account of the profuse perspiration, abundant expectoration, and diarrhea.

I have described the most common history of this terrible malady. But there are no two cases alike.

There are many varieties of the disease, which are known by names more or less descriptive, as for example: "Rapid Consumption," Febrile Consumption," "Chronic Consumption," "Dyspeptic Consumption," "Latent Consumption," and "Infantile Consumption."

COUGH. Usually, the earliest symptom which excites apprehension of pulmonary disease, is a slight cough. At first it occurs only in the morning, but as the disease advances it becomes more frequent and occurs at all hours of the day. Not unfrequently it is a most distressing symptom. It justly excites the patient's apprehensions, unless it can be traced to some other cause than phthisis, and especially if it is excited by exertion, as going up stairs rapidly, running, laughing, singing or speaking. Soon there is hawked from the throat a transparent frothy fluid, not unlike that which accompanies a slight catarrh, and is usually attributed to this cause. The cough, as the disease advances, becomes very constant; sleep is broken by it, and every attempt at conversation, or exercise, is frustrated. As the terrible destruction proceeds the breath-

lessness and suffocation are sometimes most distressing.

Although cough is the first symptom of phthisis and plays so important a part in its entire history, occasionally a case of true tubercular consumption presents no cough from first to last.

Expectoration. After the cough has continued a few weeks, or sometimes months, a fluid resembling saliva is expectorated. This by degrees becomes stringy and tenacious, and specks of opaque matter appear.—Sometimes these specks are yellow, sometimes they approach to green, and not unfrequently they possess an ashen color. If thrown into water, they assume a partly sinking, partly floating condition. As the disease advances, streaks of blood appear, and the expectoration becomes less tenacious but more opaque.—It also assumes a homogeneous appearance; is brought up in distinct masses, and with more ease than at first. These masses sink in water, or if mixed with ropy matter are suspended at different depths. In the second stage, dark and even black streaks, and frequently rice-like bodies, are mixed with the expectoration. In the last stages the expectorated matter often becomes gelatinous, of a dark hue and with fetid odor. The various changes which occur in the character of the expectoration differ in different cases and are more or less affected by catarrh and inflammation.

As a symptom it is very equivocal, and may occur independent of phthisis. In rare instances it does not appear at all. The time of its commencement and the various changes which occur in its character differ very greatly in different cases. But the ash-colored masses which appear in the advanced stage is almost universally accompanied by tubercles in the lungs. The quantity of expectorated matter is sometimes very great, but in some instances it is extremely small, and that too in cases which, upon examination, show large excavations in the lungs. Before the tubercles commence suppuration, the matter expectorated must be supplied by the bronchial membrane; the surface of the tubercles affords an additional source, but the quantity from them is often much less than their extent would indicate.

Dyspnœa. Tuberculous disease of the lungs cannot exist to any considerable extent, without dyspnœa, or difficult breathing. Sometimes it is one of the first symptoms, manifesting itself during exertion, or when attempting fully to inflate the lungs. Where the patient takes little or no exercise it may not attract much attention. When the disease is making rapid progress dyspnœa is quite noticeable; sometimes the rapidity of breathing is nearly doubled. Immediately after an attack of hemoptysis, the dyspnœa is often severe; at other times the discharge of blood relieves

both cough and difficult breathing. As this symptom occurs without pain it may fail to attract notice until it becomes quite marked. Persons of a scrofulous or tuberculous constitution are liable to congestion of the lungs and dyspnœa upon great exertion, long before the lung tissue is involved.

Although dyspnœa is produced by other causes, if it occur in a person with strumous taint, it may justly arouse suspicion.

Pulse. If the pulse of a healthy person, when reclining in an easy chair, is sixty beats per minute, it will be, when he is standing, sixty-six; if his pulse be eighty beats in a reclining position, it will be ninety-three when he is standing; if it be one hundred beats sitting, it will be one hundred and nineteen, standing; if one hundred and twenty beats when he is at rest, it will be one hundred and forty-seven when erect.—This table is given by the distinguished Dr. Guy, and appears in the "Encyclopedia of Anatomy and Physiology," in the article, "Pulse."

In consumptives, there is little or no such difference; indeed, it is not unusual that the pulse of the phthisical patient, which is one hundred beats per minute when reclining, is precisely the same in standing. This is one of the diagnostic indications of the malady.—While it is not claimed that the difference in the rapid-

ity of the heart's action, among the healthy, is in strict accordance with the table given, it is true, that there is, when the experiment is *properly* made, almost invariably a marked difference, which is not seen among consumptives. Its entire absence excites suspicion of phthisis pulmonalis.

If a person, free from phthisical taint, be weak, the effect of rising, upon the pulse, will be still greater. As debility increases this variation of the heart's action, we might conclude that the weakness of consumptives would lead to the same results. That it does not, is remarkable, and serves to increase the value of this diagnostic indication.

If a man comes to my Institution with a pulse above ninety, I at once suspect phthisis; for, a pulse so rapid, in most other diseases, disqualifies a person for exertion. But we must not forget that there are wide departures from the average rapidity of the heart's action. Napoleon's pulse was only forty. In such a person, were the pulse to rise to sixty, it would excite the same suspicion, that a pulse of one hundred would, in a man whose natural rate was seventy. My own pulse, during many years, has ranged at fifty-six. Were it to rise to eighty, it would be, for me, as rapid as a pulse of the average man at ninety-five. But without considering these very unusual departures from the normal standard, before examining my patient's

chest, if I find the pulse nearly one hundred, grave suspicions are excited.

I have given more attention to the condition of the pulse, because it is one of the symptoms, which the non-professional public may advantageously study in arriving at the condition of their lungs. If your natural pulse be seventy-five, and now, with wasting flesh, and rapid breathing, it almost uniformly reaches ninety, it may justly excite suspicion of your lungs.

During the treatment of a case of phthisis I am in the habit of watching the pulse with great interest. If it falls from one hundred to ninety, to eighty-five, to eighty, I am more encouraged than by any other change. Indeed, the non-medical man, has within his reach, without a stethoscope, or skill, one of the most reliable of all means of determining the existence of phthisis pulmonalis, and of the progress made in its treatment.

Hemoptysis. Hemoptysis, or bleeding from the lungs, though frequently classed among the causes of phthisis, from the fact that it often precedes other symptoms, is more commonly the result of tubercles already existing in the lungs. Rarely is it a *cause* of consumption. When it occurs without tubercles, it will be found, on examination, that the patient is decidedly scrofulous. If not the result of accident, or vicarious

of menstruation, it may be fairly attributed to consumption. It may occur in any stage of the disease and even before the existence of cough. Sometimes only a mouthful of blood; sometimes a pint, and where the lungs are extensively disorganized several pints are discharged at one time. Except in the latter case it is rarely dangerous to life. It is more frequent in females than in males; and in persons of middle age than those either young or old. When it precedes other symptoms of phthisis it usually comes on a few hours after considerable exertion. Although not always a marked symptom of consumption, it is present in a majority of cases.

Emaciation. Emaciation is a prominent feature of consumption. One eminent writer says that in persons between the ages of forty and fifty, he has found it one of the earliest signs, occurring even when there was no cough, dyspnœa, increased frequency of pulse, or other marked indication. It is seen earlier in males than in females. In young girls there is often considerable disease of the lung tissue before any loss of flesh.

Emaciation may justly excite apprehension, particularly when accompanied with lassitude, cough, and an increased rapidity of the heart's action.

Pain. Pain in the chest is an uncertain sign of phthisis. The lung is much less sensitive than most

other tissues and suffers extensive disorganization without corresponding painful sensations. Still, they are frequently experienced in slight degree, in the first stages, under the clavicle, or in the region of the lower bone of the sternum. During the second and third stages it often becomes very severe in the whole of the affected region.

Fever. The *hectic flush* does not appear until the disease has made considerable progress, hence it is not particularly important as a diagnostic indication. In the early stages it is scarcely noticeable. It occurs in daily paroxysms, commencing towards evening and often lasting into the night.

Perspiration. The *night sweat* is really the third stage of the fever paroxysm. It comes on towards morning, first only on the upper portions of the body, but as the disease advances, extends over the whole surface. It indicates an advanced stage of the malady.

Diarrhea. Diarrhea usually does not occur until the third stage of consumption. If it is severe the disease is making rapid progress. The evacuations are generally of a yellowish color. It is often attended with painful sensations, but commonly abates the cough, expectoration and perspiration. It is of little importance as a symptom. The diarrhea is frequently accompanied by vomiting.

Physical Signs. If the hand be placed upon the chest over a lung, suffering from certain diseased conditions, by the sense of feeling we may sometimes discover the nature of the malady. If the ear be applied to the chest over a diseased heart or lung, the abnormal condition is easily determined. If you rap the ribs over a diseased lung, the sound is peculiar. If one lung, in part, or altogether, ceases to respire, by a comparison of the two halves of the chest with the eye, the fact is readily determined. The indications thus arrived at, are known as physical signs. They constitute a most interesting chapter in medical science. No other has more deeply interested the profession; but as, generally speaking, the people to whom this book is addressed, will scarcely undertake to practice auscultation and percussion, I have thought best to pass over the subject with this brief allusion.

CAUSES OF CONSUMPTION.

Sir James Clark says, "It may be fairly questioned, whether the proportion of cures of confirmed consumption is greater at the present day than in the time of Hippocrates; and although the public may continue to be the dupes of boasting charlatans, I am

persuaded that no essential progress has been made or *can be made* in the cure of consumption, until the disease has been treated upon different principles from what it hitherto has been. If the labor and ingenuity, which have been misapplied in fruitless efforts to cure an irremediable condition of the lungs, had been rightly directed to the investigation of the causes and nature of tuberculous disease, the subject of our inquiry would have been regarded in a very different light from that in which it is at the present period."

While I shall not attempt a discussion of all the causes of phthisis pulmonalis, I shall, in a brief and familiar way, consider the more obvious sources of this terrible malady, and particularly those which all classes—even the poorest—may remove or avoid.

Impure Air a Cause of Consumption. In discussing the causes of a disease, whose principal expression is in the lungs, nothing can be more legitimate than a consideration of the air we breathe. In full respiration, it penetrates every one of the many millions of air cells.

Dust. Every species of dust must prove injurious. Workers in those factories where tools are ground and polished, soon die of pulmonary disease.

The dust of cotton and woolen factories, that of the street, and that which is constantly rising from our carpets, are all mischievous. M. BENOISTON found among cotton spinners the mortality from consumption, 18 per thousand per annum; coal men, 41; those breathing an atmosphere charged with mineral dust, 30; dust from animal matter, as hair, wool, bristles, feathers, 54 per thousand; of these last the greatest mortality was among workers in feathers; least among workers in wool. The average liability to consumption among persons breathing the kinds of dust named, was 24 per thousand, or 2-40 per cent. In a community where many flints were made, there was great mortality from consumption, the average length of life being only 19 years.

GASES. Among the poisonous gases which infect our atmosphere, carbonic acid deserves special consideration. The principal result of all respiration and combustion, it exists in minute quantities everywhere, but when it accumulates to the extent of two or three per cent., it seriously compromises health. I have seen the last half of an eloquent sermon entirely lost upon the congregation. Carbonic acid had so accumulated, that it operated like a moderate dose of opium. No peroration would arouse them. Nothing but open windows could start life's currents. In lectures before

Lyceums, I often have a quarrel with the managers about ventilation. There is, even among the more intelligent, a strange indifference to the subject.

As this work is not designed to guide architects in the construction of buildings, I will not indicate, as I have done in another work, the best known means for ventilation.

The following fact graphically illustrates the influence of carbonic acid on human life.

The Suicide. A young Frenchman, M. Deal, finding his hopes of cutting a figure in the world rather dubious, resolved to commit suicide, but, that he might not leave the world without producing a sensation, and flourishing in the newspapers, he resolved to kill himself with carbonic acid. So, shutting himself in a close room, he succeeded in his purpose, leaving to the world the following account, which was found near his dead body the next morning:

"I have thought it useful in the interest of science, to make known the effects of charcoal upon man. I place a lamp, a candle, and a watch on my table, and commence the ceremony.

"It is a quarter past ten; I have just lighted the stove; the charcoal burns feebly.

"Twenty minutes past ten; the pulse is calm, and beats at its usual rate.

"Thirty minutes past ten; a thick vapor gradually

fills the room; the candle is nearly extinguished; I begin to feel a violent headache; my eyes fill with tears; I feel a general sense of discomfort; the pulse is agitated.

"Forty minutes past ten; my candle has gone out; the lamp still burns; the veins at my temple throb as if they would burst; I feel very sleepy; I suffer horribly in the stomach; my pulse is at eighty.

"Fifty minutes past ten; I am almost stifled; strange ideas assail me. . . . . I can scarcely breathe. . . . . I shall not go far. . . . There are symptoms of madness. . . . .

"Sixty minutes past ten; I can scarcely write . . . . my sight is troubled. . . . . My lamp is going out. . . . . I did not think it would be such agony to die. . . . . Ten . . . . Here followed some quite illegible characters. Life had ebbed. On the following morning he was found on the floor."

The Black Hole of Calcutta. The famous case of the "Black Hole of Calcutta" has been so universally read that the facts are new to none; but the version of that terrible affair, by Mr. Holwell, may be new to some of my readers. I believe no similar fact serves so well to impress the subject upon the public mind, and therefore reproduce his account, which appeared in the *Annual Register* for 1758.

"Figure to yourself the situation of a hundred and forty-six wretches, exhausted by continual fatigue and

action, crammed together in a cube of eighteen feet, in a close sultry night in Bengal, shut up to the eastward and southward (the only quarters whence air could reach us) by dead walls, and by a wall and door to the north, open only to the westward by two windows strongly barred with iron, from which we could receive scarce any circulation of fresh air. We had been but a few minutes confined before every one fell into a perspiration so profuse, you can form no idea of it. This brought on a raging thirst, which increased in proportion as the body was drained of its moisture. Various expedients were thought of to give more room and air. To gain the former it was moved to put off their clothes; this was approved as a happy motion, and in a few moments every one was stripped—myself, Mr. Court, and the two young gentlemen by me, excepted. For a little while they flattered themselves with having gained a mighty advantage; every hat was put in motion to gain a circulation of air, and Mr. Baillie proposed that every man should sit down on his hams. This expedient was several times put in practice, and at each time many of the poor creatures, whose natural strength was less than that of others, or who had been more exhausted, and could not immediately recover their legs when the word was given to rise—fell to rise no more, for they were instantly trod to death or suffocated. When the whole body sat down, they were so closely wedged together, that they were obliged to use many efforts before they could get up again. Before nine o'clock every man's thirst grew intolerable, and respiration difficult. Efforts

were made to force the door, but in vain. Many insults were used to the guard to provoke them to fire on us. For my own part, I hitherto felt little pain or uneasiness, but what resulted from my anxiety for the sufferings of those within. By keeping my face close between two of the bars, I obtained air enough to give my lungs easy play, though my perspiration was excessive, and thirst commencing. At this period, so strong a urinous volatile effluvia came from the prison, that I was not able to turn my head that way for more than a few seconds at a time.

"Now every body, except those situated in and near the windows, began to grow outrageous, and many delirious. *Water! water!* became the general cry. An old Jemmantdaar, taking pity on us, ordered the people to bring us some skins of water. This was what I dreaded. I foresaw it would prove the ruin of the small chance left us, and essayed many times to speak to him privately to forbid it being brought; but the clamor was so loud it became impossible. The water appeared. Words cannot paint the universal agitation and raving the sight of it threw us into. I flattered myself that some, by preserving an equal temper of mind, might outlive the night; but now the reflection that gave me the greatest pain was, that I saw no possibility of one escaping to tell the dismal tale. *Until the water came I had not myself suffered much from thirst, which instantly grew excessive.* We had no means of conveying it into the prison but by hats forced through the bars; and thus myself, and Coles, and Scott, supplied them as fast as possible. But those who have

experienced intense thirst, or are acquainted with the cause and nature of this appetite, will be sufficiently sensible it could receive no more than a momentary alleviation; the cause still subsisted. Though we brought full hats through the bars, there ensued such violent struggles and frequent contests to get it, that before it reached the lips of any one, there would be scarcely a small teacupful left in them. These supplies, like sprinkling water on fire, only seemed to feed the flame. Oh! my dear sir, how shall I give you a just conception of what I felt at the cries and cravings of those in the remoter parts of the prison, who could not entertain a probable hope of obtaining a drop, yet could not divest themselves of expectation, however unavailing, calling on me by the tender considerations of affection and friendship. The confusion now became general and horrid. Several quitted the other window (the only chance they had for life) to force their way to the water, and the throng and press upon the window was beyond bearing; many, forcing their way from the further part of the room, pressed down those in their passage who had less strength, and trampled them to death.

"From about nine to eleven I sustained this cruel scene, still supplying them with wtaer, though my legs were almost broke with the weight against them. By this time I myself was near pressed to death, and my two companions, with Mr. Parker, who had forced himself to the window, were really so. At last I became so pressed and wedged up, I was deprived of all motion. Determined now to give everything up, I

called to them, at a last instance of their regard, that they would relieve the pressure upon me, and permit me to retire out of the window to die in quiet. They gave way, and with much difficulty I forced a passage into the centre of the prison, where the throng was less by the many dead, amounting to one-third, and the numbers who flocked to the windows; for by this time they had water also at the other window. . .
I laid myself down on some of the dead, and, recommending myself to Heaven, had the comfort of thinking my sufferings could have no long duration. My thirst now grew insupportable, and the difficulty of breathing much increased; and I had not remained in this situation ten minutes before I was seized with a pain in my breast, and palpitation of heart, both to the most exquisite degree. These obliged me to get up again, but still the pain, palpitation, and difficulty of breathing, increased. I retained my senses, notwithstanding, and had the grief to see death not so near me as I had hoped, but could no longer bear the pains I suffered, without attempting a relief, which I knew fresh air would and could only give me. I instantly determined to push for the window opposite me, and by an effort of double the strength I ever before possessed, gained the third rank at it—with one hand seized a bar, and by that means gained a second, though I think there were at least six or seven ranks between me and the window. *In a few moments the pain, palpitation, and difficulty of breathing ceased*, but the thirst continued intolerable. I called aloud, '*Water, for God's sake!*' I had been concluded dead; but

as soon as the men found me amongst them, they still had the respect and tenderness for me to cry out, '*Give him water!*' nor would one of them at the window attempt to touch it till I had drunk. *But from the water I had no relief; my thirst rather increased by it;* so I determined to drink no more, but patiently wait the event. I kept my mouth moist from time to time by sucking the perspiration out of my shirt sleeves, and catching the drops as they fell like heavy rain from my head and face; you can hardly imagine how unhappy I was if any of them escaped my mouth. . . . I was observed by one of my companions on the right, in the expedient of allaying my thirst by sucking my shirt sleeve. He took the hint, and robbed me from time to time of a considerable part of my store, though, after I detected him, I had the address to begin on that sleeve first when I thought my reservoirs were sufficiently replenished, and our mouths and noses often met in contact. This man was one of the few who escaped death, and he has since paid me the compliment of assuring me, he believed he owed his life to the many comfortable draughts he had from my sleeves. No Bristol water could be more soft or pleasant than what arose from perspiration.

"By half-past eleven the much greater number of those living were in an outrageous delirium, and others quite ungovernable; few retaining any calmness but the ranks near the windows. They now all found that water, instead of relieving their uneasiness, rather heightened it, and Air! air! was the general cry. Every insult that could be devised against the guard

was repeated to provoke them to fire on us, every man that could, rushing tumultuously towards the windows with eager hopes of meeting the first shot. But these failing, they, whose strength and spirits were quite exhausted, laid themselves down, and quietly expired upon their fellows; others, who had yet some strength and vigor left, made a last effort for the windows, and several succeeded by leaping and scrambling over the backs and heads of those in the first ranks, and got hold of the bars, from which there was no removing them. Many to the right and left sunk with the violent pressure, and were soon suffocated; for now a steam arose from the living and the dead, which affeced us in all its circumstances, as if we were forcibly held by our heads over a bowl of strong volatile spirit of hartshorn until suffocated; nor could the effluvia of the one be distinguished from the other. I need not ask your commiseration when I tell you in this plight, from half an hour after eleven till two in the morning, I sustained the weight of a heavy man with his knees on my back, and the pressure of his whole body on my head; a Dutch sergeant, who had taken his seat on my left shoulder, and a black soldier bearing on my right: all which nothing would have enabled me to support but the props and pressure equally sustaining me all round. The two latter I frequently dislodged by shifting my hold on the bars, and driving my knuckles into their ribs; but my friend above stuck fast, and, as he held by two bars, was immovable. The repeated trials I made to dislodge this insufferable incumbrance upon me, at last quite exhausted me, and

towards two o'clock, finding I must quit the window or sink where I was, I resolved on the former, having borne truly, for the sake of others, infinitely more for life than the best of it is worth.

"I was at this time sensible of no pain, and little un easiness. I found a stupor coming on apace, and laid myself down by that gallant old man, the Rev. Jervas Bellamy, who lay dead with his son, the lieutenant, hand in hand, near the southernmost wall of the prison. Of what passed in the interval, to the time of resurrection from this hole of horrors, I can give you no account."

At six in the morning the door was opened, when only twenty-three out of the hundred and forty-six still breathed. These were subsequently revived.

As the subject of ventilation stands first in importance among those bearing on the prevention of consumption, I give one additional fact.

Steamer "Londonderry." This steamer left Liverpool for Sligo, on Friday, Dec. 2d, 1848, with two hundred passengers, mostly emigrants. A storm soon came on. The Captain ordered the passengers into the steerage cabin, which was eighteen feet long, eleven wide, and seven high. The hatches were closed, and a tarpaulin fastened over this only entrance to the cabin.

The poor creatures were now condemned to breathe the same air over and over again. Then followed a

dreadful scene. The groans of the dying, the curses and shrieks of those not yet in the agonies of death, must have been inconceivably horrible. The struggling mass at length burst open the hatches, and the mate was called to gaze at the fearful spectacle. Seventy-two were already dead, many were dying, their bodies convulsed, the blood starting from their nostrils, eyes and ears.

It does not appear that the Captain designed to suffocate his passengers, but that he was simply ignorant of the fact that air which has passed to and fro in the lungs, becomes a deadly poison.

The "Black Hole of Calcutta," the "Steamer Londonderry," and a thousand other instances where immediate death has resulted from carbonic acid, constitute a terrible chapter in human suffering and death; but they are all as nothing compared with the millions who nightly sleep in unventilated rooms, from which they escape with life, but not without serious injury. As a medical man, I have visited thousands of sick rooms, and have not found in one hundred of them a pure atmosphere. I have often returned from church, seriously doubting whether I had not committed a sin, in exposing myself to its poisonous air. There are in our great cities, churches costing $50.000, in the construction of which not fifty cents were expended in

providing means for ventilation. Ten thousand dollars for ornament, but not ten cents for pure air. Parlors with furnace heat and many gas-burners (each of which consumes as much oxygen as several men) are made as close as possible, and a party of ladies and gentlemen spend half the night in them. In 1861 I visited a Legislative Hall. The Legislature was in session. I remained half an hour in the most impure air I ever attempted to breathe. If the laws, which emanated from such an atmosphere, were good, it is a remarkable instance of the mental and moral rising above a depraved physical.

Our school houses are, some of them, so vile in this respect, that I would prefer to have my son remain in utter ignorance of books, rather than to breathe during six hours of every day such a poisonous atmosphere. Theatres and Concert rooms are so foul, that only reckless people continue to visit them. Twelve hours in a railway car exhaust one, not because of the sitting, but because of the devitalized air. While crossing the ocean in the Cunard "Africa," and again in the Collins "Baltic," I was constantly amazed that men who knew enough to construct such noble ships, did not know enough to furnish air to the passengers. The distresses of sea-sickness are greatly intensified by the sickening atmosphere which pervades the ship. Were carbonic acid black, what a contrast would be

presented between the air of our hotels and their elaborate ornamentation.

It is hardly necessary to say, that every place I have mentioned, might be cheaply and completely ventilated.

A writer in *Chambers' Journal*, in reviewing the first volume of the Health of Town's Commission, says:

"The startling facts brought forward as to the *creation*, we may call it, of scrofulous affections by impure air, are new, and present some of the gloomiest features of the volume, inasmuch as they prove the fatal effects of the pernicious influences complained of, in the existence of a deteriorating population, diseased in themselves, and bequeathing disease to a still more wretched posterity. Joseph Toynbee, Esq., one of the witnesses examined, appears to have devoted special attention to this part of the subject. On being asked as to his observation of 'the effect of defective ventilation,' he replies—'The defective ventilation appears to me to be the principal cause of the scrofulous affections, which abound to an enormous extent amongst our patients. When I have had a scrofulous patient come before me, I have always been able to trace this as one of the agents.' He cites the work of a French physician, M. Baudeloque, in which it is stated 'that the repeated respiration of the same atmosphere is the cause of scrofula; that, if there be entirely pure air, there may be bad food, bad clothing, and want of personal cleanliness, but that scrofulous disease cannot exist.' The following facts are further quoted:—'The development of scrofula is constantly preceded by the

sojourn, more or less prolonged, in air which is not sufficiently freshened. It is impossible to deny that hereditary disposition, the lymphatic temperament, uncleanliness, want of clothing, bad food, cold and humid air, are of themselves circumstances non-effective for the production of scrofula."

"'When it is seen, on the other hand, that this disease never attacks persons who pass their lives in the open air, and manifests itself always when they abide in an air which is unrenewed, and this, whatever may be the extent of other causes, it appears evident that the non-renewal of the air is a necessary condition in the production of scrofula. Invariably, it will be found on examination, that a truly scrofulous disease is caused by a vitiated air, and it is not always necessary that there should have been a prolonged stay in such an atmosphere. Often a few hours each day is sufficient; and it is thus that persons may live in the most healthy country, pass the greater part of the day in the open air, and yet become scrofulous, because of sleeping in a confined place, where the air has not been renewed. This is the case with many shepherds. It is usual to attribute scrofula, in their case, to exposure to storms, and atmospheric changes, and to humidity. But attention has not been paid to the circumstance that they pass the night in a confined hut, which they transport from place to place, and which protects them from wet; this hut has only a small door, which is closed when they enter, and remains closed also during the day; six or eight hours passed daily in a vitiated air, and which no draught ever renews, is the true

cause of their disease. I have spoken of the bad habit of sleeping with the head under the clothes, and the insalubrity of the *classes* where a number of children are assembled together.'"

"An instance is adduced in corroboration: 'At three leagues from Amiens lies the village of Oresmeaux; it is situated in a vast plain, open on every side, and elevated more than 100 feet above the neighboring valleys. About sixty years ago, most of the houses were built of clay, and had no windows; they were lighted by one or two panes of glass fixed in the wall; none of the floors, sometimes many feet below the level of the street, were paved. The ceilings were low; the greater part of the inhabitants were engaged in weaving. A few holes in the wall, which were closed at will by means of a plank, scarcely permitted the air and light to penetrate into the workshop. Humidity was thought necessary to keep the threads fresh. Nearly all the inhabitants were seized with scrofula, and many families, continually ravaged by that malady, became extinct; their last members, as they write me, died, *rotten with scrofula*.'"

"'A fire destroyed nearly a third of the village; the houses were re-built in a more salubrious manner, and by degrees scrofula became less common, and disappeared from that part.' Other facts are brought forward, all tending to prove the fatal effects of vitiated air, and the beneficial results of a constantly pure atmosphere, not only on the health, but on the morals of the people. Other authorities—Dr. Blacke, Dr. Blakely Brown, Dr. Duncan, and Professor Alison—

fully confirm these statements; in addition to which we are informed that 'defective ventilation may be considered one great cause of all the diseases of the joints which we so frequently meet with, as well as of the diseases of the eye and skin—shingles, lepra, and *porrigo*, or ringworm. Besides the eye, the ear is injuriously affected by vitiated air, which thus becomes the cause of many cases of deafness. It is a fact, that at least two times more of the children of the laboring classes are affected by the ear-ache and deafness, than of children of the rich and better conditioned classes, less exposed to like influences."

"Every population throws off insensibly an atmosphere of organic matter excessively rare in country and towns, but less rare in dense than in open districts; and this atmosphere hangs over cities like a light cloud, slowly spreading, driven about, falling, dispersed by winds, washed down by showers. It is not *vitalis halitus*, except by origin, but matter which *has lived*, is dead, has left the body, and is undergoing, by oxydation, decomposition into simpler than organic elements. The exhalations from sewers, church yards, vaults, slaughter-houses, cess-pools, commingle in the atmosphere, as polluted waters enter the Thames; and notwithstanding the wonderful provision of nature for the speedy oxydation of organic matter in water and air, accumulate, and the density of the poison (for in the transition of decay it is a poison) is sufficient to impress its destructive action on the living, to receive and impart the processes of zymotic principles, to convert, by a subtile, sickly, deadly medium, the people

agglomerated in narrow streets and courts, down which no wind blows, and upon which the sun seldom shines."

"A small quantity of organic matter can only escape with the carbon and aqueous vapor (37½ ounces daily, according to Dalton) from the skin and lungs. The presence of a putrid atmosphere is perceived by the senses in parts of all towns; and Liebig, by operating on large masses of the atmosphere, has obtained ammonia, which is a product of the putrefaction of animal matter. The existence, therefore, in the atmosphere of animal matter, is incontestible; and, as it must be most dense in the densest districts, where it is produced in the greatest quantities, and the facilities for decomposing it in the sunshine, and sweeping it away by currents of wind, are the least, its effects—disease and death—will be most evident in towns, and in the most crowded districts of towns. It is to this cause that the high mortality of towns is to be ascribed."

Consumption originates in the tubercular diathesis. This diathesis is produced by those agencies which deprave the blood and waste vitality. Of these agencies none is so universal and potent as impure air. When we consider that besides mingling momentarily with the blood of the entire system, it is in direct and constant contact with every part of the lungs, we cannot fail to deduce, that foul air must play a most important part in that local expression of the tubercular taint known as pulmonary consumption.

Dr. Guy, in his examination before the Commissioners, in regard to consumption, affirms: "This (deficient ventilation) I believe to be more fatal than all other causes put together." Dr. Guy showed that consumption was nearly twice as common among tradesmen as among the gentry, which he attributes to the bad ventilation of their stores.

Some of my lady friends in Boston, who are accustomed to pure air at home, greatly dread to "shop," because of the bad atmosphere found in the stores. I am not acquainted with three stores in Boston that are well ventilated. It is really touching to see the poor clerks, of either sex, with their pale, wan faces, languidly moving about in an atmosphere which is slowly poisoning them.

The distinguished Dr. Carpenter says: "Again the due elaboration of the fibrin of the blood is undoubtedly prevented by an habitually deficient respiration, and various diseases which result from the imperfect performance of this elaboration, consequently manifest themselves. The scrofulous (consumptive) diathesis is thus frequently connected with an unusually small capacity of the chest, (or lack of oxygen in the air.)"

Dr. Griscom says: "*Now it is not disputed, that matter, carried from the digestive organs, and thrown into the circulation, cannot be perfectly nutritive unless it be per-*

fectly aerated or oxygenated. This fact is fully established. A very small quantity of food, even when it is to a certain extent unwholesome, may possibly be assimilated, and with a due supply of air to ventilate it when it arrives in the lungs, may become highly nutritive; but the largest conceivable quantity of what is called nutritious food, taken into the stomach and there digested, can never be elaborated into nutritive blood without a due supply of air to arterialize it."

Prof. Alison, one of the highest authorities on this subject, remarks: "It is hardly possible to observe separately the effects on the animal economy of deficiency of exercise and of fresh air, these two causes being applied together, and often in connection with imperfect nourishment. But it is perfectly ascertained, on an extensive scale, in regard to the inhabitants of large and crowded cities as compared with the rural population of the same climate; first, that their mortality is very much greater, especially in early life, and the probability of life very much less; and secondly, that of this great early mortality in large towns, a very large proportion is caused by scrofulous disease. And from these two facts, it evidently follows that deficiency of fresh air and of exercise are among the most important, because the most remediable of the causes from which the scrofulous diathesis arises."

Dr. Griscom concludes his excellent work on the "Uses and Abuses" of air, with the following remarks: "To those who have the care and instruction of the rising generation—the future fathers and mothers of men—this subject (ventilation) commends itself with an interest surpassing that of any other. Nothing can more convincingly establish the belief of the existence of something essentially and vitally wrong in the habits and circumstances of civilized life, than the appalling fact, that one-fourth of all who are born, die before reaching the fifth year, and that one-half the deaths of mankind occur under the twentieth year.

Let those who have these things in charge, answer to their own consciences how they have discharged their duty, in supplying to the young, there sponsibility of whose lives they have assumed—A PURE ATMOSPHERE —THE FIRST REQUISITE FOR HEALTHY BODIES AND SOUND MINDS."

CLAUDE BERNARD'S EXPERIMENTS. This eminent man made some interesting experiments upon animals, which illustrate an apparent paradox often observed in human life.

A sparrow placed in a bell-glass of given size, lived three hours; but at the end of the second hour, when there was still oxygen enough to sustain the bird another hour, if a fresh sparrow were introduced it ex-

pired immediately. Or if at the end of the second hour the sparrow was taken out of the bell-glass and allowed to fly about in pure air a few moments, and was then placed in the bell-glass again, where, but for this removal it would have lived an hour, it was instantly killed.

Some time since I had occasion to visit an establishment where one hundred and fifty girls, in a single room, were engaged in needle-work. Pale faced, with low vitality and feeble circulation, they seemed unconscious that they were breathing an atmosphere which at once produced in myself dizziness and a sense of suffocation. If I had remained a week, like them, I should have become unconscious of the vileness of the atmosphere.

Lewes mentions that two French women, one sick with typhoid fever, were in a room heated by a coke stove. The gas escaped from the stove. The well woman was suffocated and fell senseless on the floor, but the sick one retained her consciousness, and by her loud cries brought assistance.

Lewes, in explaining this paradox says, "vitiated air will suffice for the respiration of a depressed organism as it would for that of a cold-blooded animal. In this depressed condition less oxygen is absorbed, and therefore less is required in the air. When we enter a vitiated air, the breathing becomes laborious; the consequence is a depression of all the organic functions, and

then the breathing becomes easy again, because we no longer require so much oxygen, and we no longer produce so much carbonic acid. Were it not for this adjustment of the organism to the surrounding medium, by a gradual depression of the functions, continued existence in a vitiated air would be impossible. We see the vigorous bird perish instantly in air which would sustain an enfeebled bird for more than an hour."

Put a bird and a snake into an air-tight bell-glass. After a little time the bird will fall from its perch, dead. The air has been so exhausted that it no longer contains sufficient oxygen to maintain life in the warm blooded animal, but the cold blooded snake still lives and continues to live, until the oxygen is reduced to less than three per cent.

A young woman, exuberant with life, comes from the country to visit her city cousins. She finds them with pale faces, cold extremities, and general debility, but, apparently comfortable in a furnace-heated, unventilated house, in which she must almost gasp for breath.

I frequently observe in the street-cars, ladies, with contracted waists and feeble vitality, breathing with indifference an atmosphere from which I am compelled to escape to the platform, even though I must stand in the rain.

In each and all of these cases, the unconsciousness

does not save from mischievous consequences. The poison operates, not only in lowering the vital tone, but in shortening the life, and in the production of numerous maladies.

Foul and Damp Cellars. The atmosphere of nearly every house is contaminated by emanations from a foul and damp cellar. If you breathe the air of an ordinary cellar, with senses fully awake, you are conscious it is far from pure. This air is constantly making its way into the rooms above. Without doubt, disease of the lungs, the organs most exposed to atmospheric poisons, may often depend, to some extent, upon this cellar atmosphere. The emanations from decaying potatoes, cabbages, turnips and other vegetable substances in a cellar, have often produced grave fevers. That these poisonous gases may affect the lungs I cannot doubt.

The thoughtful and earnest will ask at once, "What can be done to remove this source of disease?" I reply: Line your cellars with cement, ventilate and drain them carefully, and keep them scrupulously clean. The frequent use of whitewash upon the walls, and over head, will prove an efficient antiseptic. The occasional use of a solution of chloride of lime in the corners and out-of-the-way places would prove an important addition.

But the true policy for those who reside in the country, is, to construct out-door cellars, in which the vegetables may be preserved. Once a week, what are needed for the house, may be brought in and deposited in a large box, so constructed as to preserve its contents from freezing. As the articles of food usually kept in a cellar are, in towns and cities, purchased in small quantities, the out-of-door cellar is there unnecessary.

The ground about nearly every house, should be thoroughly underdrained, to the depth of three feet, with round two inch tile, such as are used for agricultural purposes. The drains should be connected, and terminate in a common outlet a few rods from the house. This should be carefully guarded by grating, to prevent its being obstructed. The drains can be connected with the eave-gutters, so as to receive all the water that falls on the roof, not needed for the cistern. By such means, the ground near the house is kept dry; and, besides the greater healthfulness secured, is much improved for garden, lawn, fruit yard and grapery. The soil under the house, preparatory to building, should be excavated as for a cellar, to the depth of one foot, and the open space filled with sand and charcoal. The part corresponding to the centre of the house, should be elevated one or two feet above the line corresponding to the walls, and when the house is

erected, the space under the walls should be left open, that the air may circulate freely under the building. It is very easy with ornamental wood or iron work to conceal the open space without lessening the circulation of the air. To keep the lower floor warm, it should be double, with an intervening space of a foot in which to pack some nonconductor.

If a cellar be suspected and is not susceptible of purification, it might be filled with sand, gravel and charcoal.

Dr. Bowditch, in his able address before the Mass. Medical Society, declared it as his conviction that a moist soil is a most fruitful source of consumption. In the light of such authority, the importance I have given to the subject of cellars—which are almost invariably damp—will not be deemed an exaggeration.

Dr. Bowditch arrives at the following conclusions:

First, Consumption is not equally distributed over New England.

Second, Its greater or less prevalence depends very much upon the characteristics of the soil on, or near which the patients, affected with it, have resided.

Third, Moisture of the soil is the only known characteristic that, so far as our present investigations have gone, is connected with the consumption-breeding districts.

Dr. B. earnestly deprecates the indifference of the

State, and the profession, to the question of location for towns. In another place he says:

"The public should correct its own views upon the whole subject of the planting of cities and villages. It should not allow speculators to run the risk of contaminating every family that may subsequently colonize a spot best fitted, perhaps, for the promotion of consumption. Now, the track of a rail-way, or the wit or reckless energy of the owner of some swamp, may be the sole reason for erecting a station house, and thereby promoting the early erection of dwelling houses near by, on localities totally unfit for human habitation."

In arousing the profession to its obligations, he uses the following language:

"We may meet with a patient, suffering under what is sometimes inaptly called the "pretubercular condition," where there is in the system—*a good-for-nothingness*—a languor, in fact, of body and soul, perhaps a slight dyspepsia, some emaciation and debility—a little cough, but without *physical* signs of pulmonary disease. If a patient has been residing under the circumstances named in this address, as promotive of consumption, *it will be our first duty to urge him to leave the spot.*"

"Still more should a removal be urged if any, even the most trivial, of physical signs of pulmonary disease be found. A short distance, even half or quarter

of a mile, may do much good; but I should prefer to have such a patient remove at once to one of the places already known, or which may hereafter be found to be drier and more favorable for him."

I take the liberty to express the hope that Dr. Bowditch will bring to the investigation of other causes of Consumption his discrimination and patience.

Moisture in the Atmosphere. It is the common belief that a dry atmosphere is most favorable to the consumptive. Many medical authors have advanced this assumption. It is, nevertheless, an error. In the British Isles, and in France, outside the cities and manufactories, the mortality from pulmonary diseases is much less than among the agricultural classes of this country. And, on the western shores of this continent, consumption is comparatively unknown.

Our disadvantage in this comparison is attributable, in considerable part, to the lack of humidity in our atmosphere. Without the evidence of facts, we might, *a priori*, argue, that excessive dryness of the air would produce dryness and irritability of the air-passages. From time immemorial, watery vapor has been used as a remedy in irritation and inflammation of the respiratory organs.

A hundred times have my consumptive patients expressed surprise that the wet weather, in which I have insisted they should go out, as usual, has not injured

them,—that they even breathe more freely than on pleasant days. Of course, I tell them, if the body is well protected, the more moist the air, the more grateful to the lungs.

There is no possible weather which can excuse the consumptive for keeping in-doors. Give him sufficient clothing, protect his feet carefully, and he may go out freely in rain, sleet, snow, and wind. Ignorance of this fact has killed thousands.

That point of temperature at which the moisture of the air first becomes visible is known as the dew-point. According to one authority, the mean dew-point of England, from the first of November to the last of March, is about 35 degrees; that of our Northern States about 16. Now suppose a house in England is kept at a temperature of 70 degrees, the drying power would there be represented by 35. A house with the same temperature in Albany, for example, would possess a drying power of 54. This great contrast in the atmosphere of the two countries is strikingly illustrated by the difference between the plump body and smooth skin of the Englishman, and the lean, juiceless body, and dry, cracked skin of the Yankee. It is also shown by the well-known difference in the influence of house-heat upon furniture. Our chairs, and sofas, and wood-work, warp and shrink, while nothing of the sort occurs in England.

As we cannot increase the amount of moisture in the atmosphere of our continent, we must limit our practical efforts to the air of our houses. If we use a stove, its entire upper surface should be made a reservoir for water; ornamental work, of but little cost, may be used to conceal it. The furnace may be made to send up, with its heat, many gallons of water daily, in the form of vapor. In justice to stoves and furnaces, I must say here, that, in the facility to do this, they possess one advantage over open fire-places.

By adding artificial moisture in this way, to the air of our houses, we not only save our furniture from drying and shrinking, but protect our skin, eyes, nose, throat, and lungs from undue dryness, and from the affections to which it would give rise. It is found necessary, in our cloth manufactories, to maintain a moist atmosphere in order to successful spinning. Intelligent managers have assured me that coughs and throat difficulties are comparatively rare in the spinning department.

We must all have observed, that, while the air of a hot kitchen is comfortable, that of a parlor at the same heat, from an air-tight stove, is almost suffocating. The kitchen has a hot stove, but the steam of its boiling kettles moistens the air.

Your country aunt, who has lived over her cooking-stove for years without serious inconvenience, after spending an afternoon in your parlor, heated by a stove

or furnace, returns home "glad to get out of that hot, stifling air." And yet the thermometer may have indicated that the kitchen was ten degrees warmer than the parlor. The dry heat of the parlor produces headache, irritability, and perhaps a sense of stricture in the chest. If we would avoid these, a dry chapped skin, an irritable nervous system, and a dry hacking cough, we must add the needed humidity by artificial means. Almost every writer on consumption regards humidity in the atmosphere as one of the principal causes of this disease. If the moisture is in such excess that it becomes visible in the form of fog, it may act prejudicially upon the respiratory apparatus; but, so long as its relations with the temperature are such that it remains in an invisible form, it must ever tend to preserve in the lungs a condition farthest from irritability.

Again, humidity in its influence upon the respiratory apparatus is determined in considerable part by the clothing of the body. If insufficiently clad, and exposed to an excessive humidity, the general vitality may be so depressed, and the blood so driven from the surface, that disease of the lungs will result. But if the body be well guarded, moisture in the air, except when in great excess, and in very low temperatures, will ever serve to preserve in the respiratory apparatus, freedom from that dryness and irritability which consti-

prominent feature in most diseases of these or-

gans. A striking illustration of its benefits is found in the comfort which phthisical persons derive from that condition of the atmosphere which accompanies a rain-storm in the summer, and again, by the relief which such patients experience in visiting the western shores of our continent, or an island in the ocean, where the air is loaded with humidity.

Furnaces and Stoves. Since the introduction of furnaces and stoves, diseases of the respiratory apparatus have greatly multiplied. The heat from these, dries the life juices out of the throat and lungs. When I am asked to see a Consumptive, and find my patient in such an atmosphere, I begin by saying, "no treatment will save you if you continue to poison your lungs in this air."

If in the shutter of a dark room you make a small aperture, you will observe in the jet of light, that the air of the best ventilated room is full of floating particles. In their ordinary condition they do not seriously injure the respiratory apparatus; but it has been shown by reliable observers, that when these motes are exposed to contact with a heated stove or furnace, they are carbonized and become poisonous to throat, lungs and blood. If this be true, it is a new and good objection to stoves and furnaces. The common idea that the air itself may be burned by a hot stove, is not well founded.

I do not say it is impossible to ventilate a room warmed by furnaces or stoves; but, with the present ignorance on the subject of ventilation, and insensibility to atmospheric influences, not one house in a hundred thus heated, will be well ventilated. If the machinery by which the needed change of air may be secured, is left to the control of the occupants of the house, bad ventilation will be the rule.

Open Fires vs. Stoves and Furnaces. An open fire is number one among house blessings. If possible, it should be a wood fire with a large fire place. Such a fire is a great luxury. It fills the family circle with satisfaction and sociability. To keep up the draft, the entire air of the room is constantly changed. Even if the room be small, and the company large, the excretions of the lungs and skin cannot so accumulate as to make the room smell close. Strange that people will not have this delightful blessing in their houses at any cost. Let them, if need be, go without silks, broadcloths, a piano, and finery of every kind, and have this excellent purifier and comfort in their homes. Who would not go miles to visit an old-fashioned log house with its great roaring fire? In whose childish reminiscences is not that cracking, rushing fire the most beautiful of memories? Why not have it all back again? If a small part of the money which we spend

in foolish, mischievous fashions, were given to the re-introduction of this good-old-fashioned blessing, we should all be healthier and happier.

Next to the wood fire, the open grate, with coal, is best; and, if the draught be good, it is a good ventilator.

In an institution for the treatment of weak chests, which we shall soon open in Boston, we shall make open wood fires play an important part.

Fires in Bed Rooms. Most people think that sleeping in cold rooms is essential to health. This is a mistake. An open fire greatly improves the atmosphere of a bed room. By it, the air of the room is constantly changed. With it, the window will be kept open. With a fire, less bed clothing is needed—an important advantage,—for a large number of blankets not only interferes with circulation and respiration, but prevents the escape of the gases which the skin is constantly emitting. Except there be wind, ventilation of any room depends upon a difference in temperature between the air inside and that outside. If the thermometer inside indicate a temperature 10 degrees below the freezing point, and outside the same, there will be no ventilation. All motion in the air originates in a difference of temperature between different points. If we would secure the constant introduction of air from the great ocean outside, into our bedrooms, we must

raise the temperature within considerably above that without.

Night Air. Consumptives, and all invalids, and indeed persons in health, are cautioned to avoid the night air. Do those who offer this advice forget that there is no other air at night, but "night air"? Certainly we cannot breathe day air during the night. Do they mean that we should shut ourselves up in air-tight rooms, and breathe over and over again, through half the twenty-four hours, the atmosphere we have already poisoned? We have only the choice between night air pure, and night air poisoned with the exhalations from our skins and lungs, perhaps from lungs already diseased.

Many persons indulge a very silly dread of a draught. It is only by motion in the atmosphere that our lungs obtain the purest air. If at night the air move briskly directly over your bed, your lungs will receive precious supplies. If you cannot endure this direct draught, you must deny yourself a great luxury. I once thought that a draught at night directly over my head, was a thing to be avoided. Now I seek it as one of the real blessings of life. My wife, who inherited a consumptive taint, was ever guarding against night air. Now she sleeps with two open windows at one end of the bed, and an open door at the other. Neither of us have had a cold for several years. Every one must

exercise his own judgment and prudence. I should be sorry were my words to lead any one into an injurious exposure. But among the many hundreds—I might say thousands,—whom I have advised to sleep with open windows, I have never known a single person to be seriously injured, even temporarily; and I may add, that almost without exception, so far as I have known, they would not return to their former habit of sleeping in unventilated rooms. At first you may contract a cold, but if you bathe freely in cold water, and employ vigorous friction upon the parts exposed while in bed, even this may be avoided. But after a few weeks experience it will be quite unnecessary for the physiologist to lecture you on the subject. You will yourself take to exhorting your friends upon the importance of well ventilated bed rooms. One of the compensations of our great war will be found in the conviction among a million returned soldiers that night air is not a poison, and that draughts are less dangerous than minie balls.

Of course I am not unaware that what I have said on sleeping in a draught will meet with very general reprobation, but it is not the only case in which false education and predudice have undertaken to ignore a great natural. I can adduce the experience of thousands in favor of a free exposure to night air and winds, and after a wide observation I have never met one person who has tried such exposure for one month

and spoke against it. A writer pertinently speaks on this point after the following fashion:

"Man acts strangely. Although a current of fresh air is the very life of his lungs, he seems indefatigable in the exercise of his inventive powers to deprive himself of this heavenly blessing. Thus, he carefully closes his bed-chamber against its entrance, and prefers that his lungs should receive the mixed effluvia from his cellar and larder, and from a patent little modern aquarius, in lieu of it. Why should man be so terrified at the admission of night air into any of his apartments? It is Nature's ever-flowing current, and never carries the destroying angel with it. See how soundly the delicate little wren and tender robin sleep under its full and immediate influence; and how fresh, and vigorous, and joyous, they rise amid the surrounding dew drops of the morning. Although exposed all night long to the heavens, their lungs are never out of order; and this we know by the daily repetition of their song. Look at the new-born hare, without any nest to go to. It lives and thrives and becomes strong and playful under the unmitigated inclemency of the falling dews of night. I have a turkey full eight years old that has not passed a single night in shelter. He roosts in a cherry tree, and is in primest health the year through. Three fowls, preferring his to the warm perches in the hen-house, took up their quarters with him early in October, and

have never gone to any other roosting-place. The cow and the horse sleep safely on the ground, and the roe lies down to rest on the dewy mountain top. I myself can sleep all night long, bareheaded, under the full moon's watery beams, without any fear of danger, and pass the day in wet shoes, without catching cold.—Coughs and colds are generally caught in the transition from an over-heated room to a cold apartment; but there would be no danger in this movement, if ventilation were properly attended to,—a precaution little thought of now-a-days."

Dr. James Blake advises the consumptive to join with several friends, procure horses and wagons, and set off upon a long journey, sleeping in the open air, no matter what the weather. He seems to think this the only way in which it is possible to induce the consumptive to sleep in the fresh air. Doctor Jackson gives the case of a consumptive young man (he does not state the condition of his lungs) who was cured by sleeping in the open air on a hay-stack. This advice and experience do not quite harmonize with the common terror of night air.

But while I believe that breathing the pure out-door air all night is an important curative means in this disease, I do not believe that sleeping in the open fields in a stormy night is the *best means* for securing pure night air, in the case of a feeble woman; on the contrary, I

think it might be more pleasantly, and quite as effectually secured in a comfortable house, with open windows and an open fire.

No doubt the lives of thousands would be saved by destroying their houses, and compelling them to sleep in the open air; not because houses are inevitable evils, but because they are so badly used. Windows are barred and closed, as if to keep out assassins; draughts defended against, as if they were bomb-shells; and the furnace-heat still more corrupts the air, which has done duty already—to how many lungs, for how many hours?

Let the consumptive thank God for the blessing of a house, but let him use it wisely. How my heart has ached, to see the consumptive patient put away in a bed, behind curtains, in an unventilated room, the doors and windows carefully closed, to shut out the very food for which the lungs and system were famishing!

I do not wonder that Blake, Jackson, and many others, have advisd an out-door life of the wildest and most exposed sort to invalids of this class; but I do wonder that they have not equally insisted upon abundance of air for them, as pure as that of the fields and mountains, in their own homes, and in the midst of friends and comforts.

Consumption in Animals. Tubercles are often found in the lungs of nearly all classes of animals. And

as bearing upon the Causes of Consumption, the circumstances under which tubercular disease is developed in some animals, lead to important suggestions. Those animals kept in our menageries are liable to tubercular disease of the lungs. Great numbers of monkies are brought from the south and kept in cages, where they soon die of consumption. This is, indeed, almost the only cause of mortality among these poor creatures.—Their lives, physiologically considered, are almost identical with those of idle human beings, of the easy class. In both cases there is an absence of sunshine, pure air, and invigorating employment. The results are debility, emaciation, tubercular disease, and death. If the inmates of human cages, or of monkey cages, were given sunshine, pure air, and exercise in abundance, tubercular disease would almost entirely disappear. What would be thought of the practice of administering drugs to these sick and dying monkies, while they were kept in the poisoned atmosphere of their cages, without exercise? Just what is thought by those who *can* think, of the same practice upon the young lady, who in addition to the unfavorable surroundings of the monkey, has her vital organs compressed with a whalebone corset, until the amount of even furnace-heated atmosphere, which she breathes, is reduced to the minimum.

What I have said of the effects of menagerie life

upon monkies, is applicable to all animals of the menagerie, with the exception of those which are permitted to walk from place to place, thereby obtaining the needed sunshine, air and exercise.

Thousands of human beings in our American cities, who must die of Consumption, might live to old age, if they could be induced to abandon their drugs, overheated rooms, improper dress, and listless inactivity, and expose themselves freely to nature's great life-giving influences.

The observations already made upon tuberculous disease and its causes, among animals kept in menageries, are quite applicable, in every particular, to cows kept in dark, unventilated stables, and to other animals similarly treated. The majority of horse-stables would soon engender tubercular disease, if the animals were not taken out to work. Indeed, so much do our horses and cattle suffer for want of pure air, when kept in stables, that it is the testimony of intelligent farmers, that those animals which "run to a stack" are more healthy than those in the stable. This, it will be remembered, is what Dr. Blake says of consumptives. He has little hope of those who stay in houses, but if they will live and sleep out-doors they may recover.

The horse standing nearest the door, has the healthiest place in the stable. The man sleeping nearest the window, has the healthiest place in the house.

CLIMATE.

The influence of climate in the production of tuberculosis was formerly much exaggerated. Removal to a warm latitude, so generally prescribed some years ago, is now rarely advised. Although the bland atmosphere, and out-of-door life of the tropics, may often check the progress of the malady, yet the constitution is generally so enervated, that the return to home and friends, often involves not only a return of the malady, but its more rapid progress. At present, a winter at Lake Superior, or other region where the cold is intense and uniform, is the popular prescription. I do not doubt the value of the expedient in many cases.— But the consumptive who can afford a winter neither in the Mediterranean nor at the frigid North, may comfort himself that the value of such trips has been greatly overrated. Advice to the phthisical to spend a season a thousand miles from home, is, to a large majority of them, not unlike that of the whimsical London doctor to the rag-picker he found coughing in the street:— "That's a bad cough, a bad cough, you have. I advise you to make a journey on the Continent; and, in order to secure all the advantages, you had better travel in your own carriage." Happily for those with short purses, health in this, as in most other cases, is more easily found at home.

I do not believe that the prejudice against our New

England climate, entertained by consumptives, is well founded. The slight percentage of difference against us, as compared with the people of other parts of the country, in the number of deaths from consumption, is to be traced, I believe, not so much to our climate as to our manufactories. New England contains nearly all the great factories, labor in which is so prejudicial to health, as well as a greater number of furnaces, air-tight stoves, and close houses.

I do not believe that the sudden changes of our New England climate are disastrous to the consumptive who is well protected. While it is true that our climate provokes a greater number of colds than that of Florida, it is not less true that our atmosphere is more invigorating.

"The Climate of the United States," by Dr. Samuel Forry, of the United States Army, one of the best works of the kind ever published, gives a great number of facts, interesting in this connection. His statistics are gathered exclusively from the army. The men of the army are, in great part, of the same age, from the same rank in life, of the same habits, and have the same clothing, food, and labor, and when sick the same treatment. The influence of climate upon human health may, therefore, be ascertained with more accuracy from careful observations among this class of men, than from any other source. In comparing the popu-

lations of New York and New Orleans, for instance, it is almost impossible to make accurate allowance for the manifold difference in habits, diet, occupation, etc.

Dr. Forry shows conclusively, that, while colds and influenzas are more common in the northern branches of the regular army, as 552 to 271, consumption is more common in the southern, in the proportion of $10\frac{1}{2}$ to $7\frac{2}{3}$. In the southern divisions, there are 708 cases of fever of various sorts, to 192 in the northern. "We may safely infer," he says, "that whatever tends to impair the constitution, as fevers, tends to develop consumption in every class which is predisposed, and in all climates and countries." Dr. Forry's tables present some curious facts. One which will most impress the general reader is, that rheumatism is more common at Key West than on the coast of New England. But it will not surprise the reflecting, that a change of 5 degrees at Key West is felt as much as one of 20 degrees at Boston. These slight changes, however, do not equally purify the atmosphere and invigorate the body.

The climate of New England is the principal source of the vigor of her people. If our atmosphere were changed to that of Florida, the glory of New England would depart. The sudden and violent changes of our weather evoke that elasticity and force which distinguish the native Yankee.

FOOD.

I believe that no other cause, beside impure air, is so active in the production of diseases of the throat and lungs, as dyspepsia.

As mentioned in another place, several eminent authors claim that every case of scrofulous diathesis has scrofulous dyspepsia. The usual indications of the tubercular taint, found in the eye, complexion, flesh, &c., of scrofulous children, may all be absent, but the peculiar dyspepsia is never absent. It shows itself in the color of the tongue and throat, in the character of the appetite, in the condition of the bowels, and in other characteristic ways.

The most eminent of authors on the subject of consumption, declares: "Of all diseases I consider dyspepsia the most fertile source of cachexia of all kinds, —for this plain reason, that a healthy condition of the digestive organs, and a due performance of their functions, are essential to the assimilation of food, and consequently to the supply of healthy nutriment."

Sir James Clarke thought that dyspepsia in the parent, often produced consumptive taint in the child.

I have read many authors, French, German, English and American, on Consumption, and I observe, that in discussing its causes, each and every one names indigestion as a fruitful source.

What are the Causes of Indigestion? In undertaking to answer this question, I ought to say, that whatever reduces the general vitality, may compromise the digestive apparatus. However, I shall consider only two or three of the more special and serious errors which produce this malady.

We Eat too much. In all countries, a majority of the population consumes too much food. But, in America, where it is easy for all classes to obtain large quantities of rich food, the evil is well nigh universal. I am confident that ninety-nine persons in every hundred eat too much.

General Repugnance to the Subject. Most persons are as irritable on the subject of excessive eating, as the community was, thirty years ago, on the subject of excessive drinking. We hear it said,—"Whatsoever is set before you, eat, asking no questions for conscience sake." This is quoted with the same satisfaction as,—"Use a little wine for thy stomach's sake." An animal man, with a cast-iron stomach, or, perhaps quite as often a dyspeptic, with a suffering stomach and ruined health, will say, "don't keep thinking about your food; it will give you the dyspepsia. A man should eat without knowing what he is eating, or without being able to remember what he has eaten."

If, at a fashionable table, one questions the digestibility of any article of food, it exposes him to ridicule. Though this is perhaps only one exhibition of the general distaste for any reform which may happen to cross our appetites.

We must think of our food. The most thoughtful attention is bestowed upon the food of our animals. We have books on the subject, which these very men who scorn to consider human diet, study with great interest. The fuel with which we fire up our engines and house furnaces, is all well studied. Why should we not studiously consider the food from which the bodies and brains of ourselves and our children are eliminated? The propriety and necessity of such thoughtful attention to our diet does not admit of serious discussion. It is only the man who hates reform and progress, who can raise the question.

Effects of Eating too much. Prof. Hitchcock, under this head says :—

"But men do not perceive the bad effects of over feeding, because in general they are ignorant of their character, and confine their attention to the more immediate effects instead of looking at those which are remote. They generally suppose, that if the stomach, or any internal organ, be oppressed, or disordered, pain will be produced in the organ itself; whereas, the

uneasiness and pain are most commonly in some other part, not unfrequently a remote part of the body. And oftentimes, food which ultimately does the man a great deal of injury, gives to the stomach a transient relief, just as piling a large quantity of wood upon a fire, seems for a time almost to extinguish it. Thus, the dyspeptic is oppressed with a sense of gnawing, and faintness at the stomach, previous to his meals. The immediate consequence of eating to satiety, is, to remove this uncomfortable sensation, and to produce a glow in the system, which, at first, is not disagreeable. Hence such a man concludes that his hearty meal has done him good. True, he feels an indisposition to bodily or mental effort, and perhaps drowsiness and sleep come over him for two or three hours; but this he considers as no bad omen; indeed, his nap refreshes him for the time, and although the thought may enter his mind, that perhaps he has eaten rather too much, should headache or heartburn come on, yet by a cup of tea, or a little exercise, he gets rid of these, and fancies that when he has forced the food from his stomach, no farther bad effects will result from a little excess in quantity. Should he have disturbed sleep and restlessness, the nightmare, or unpleasant dreams, the following night, he scarcely thinks of referring the mischief to the dietetic excesses of the preceding day. His appetite is good the next day, and he takes the

same course, viz, to eat as much as his stomach craves; and although overloaded nature raises those signals of distress which I have mentioned, he is ignorant of their meaning, until after a few weeks, or months, when gloom and jealousy enshroud the mind, as forerunners of the storm that is about to burst.

"A man never thinks of imputing these feelings to his excess in eating, although, in fact, they are the direct consequence; and, indeed, I am more and more convinced, that most of the depression of spirits, which accompanies nervous complaints, might be prevented by rigid abstemiousness in diet.

"Another remote consequence of eating too much, is uneasiness and irritability of temper, especially in the morning; which most men never regard as having such an origin. The greatest gluttons we ever beheld, (except one) says a medical reviewer, were meagre men, whose tempers became so crabbed, that even their children have wished them dead. That these are real dyspeptics is proved by their cure being practicable, if they are subjected to the same regimen which dyspeptics require."

Dr. Johnson mentions a curious case illustrative of this effect of excessive eating upon the mind. He had a hypochondriacal patient, who "was every second day affected with such an exasperation of his melancholy forebodings, that he did nothing but walk about his

room, wringing his hands, and assuring his servants that the hand of death was upon him, and that he could not possibly survive more than a few hours. Under these gloomy impressions he would refuse food and drink, and, in fact, give himself up for lost. The succeeding sun, however, would find him quite an altered man. The cloud had broken away; hope was rekindled; and the appetite for food and drink was indulged *ad libitum*. Next morning all would be despair, and nothing but death could be thought of. So he went on, as regular as light and darkness. But if on the good day, he could be kept on a very small portion of food, and the bottle unopened, the next would be good also. This, however, could seldom be done, for as soon as he felt a respite from his miseries, procured by one day's abstinence, he returned to his indulgences, and again irritated his stomach and bowels, and through them reproduced the blue devils in the mind."

Most of the ancient philosophers might be named as patterns of health, temperance, and long life. Pythagoras, in particular, restricted himself to vegetable food altogether; his dinner being bread, honey, and water: and he lived upwards of eighty years. His followers adopted the same diet, and with results equally striking. It is well known, also, that the early Christians were remarkable for temperance, and for longevity too, when not removed by persecution. Matthew, for ex-

ample, according to Clement, lived upon vegetable diet. "The eastern christians, who retired from persecution into the deserts of Egypt and Arabia, allowed themselves but twelve ounces of bread per day, as their only solid food, and water alone for drink, yet they lived long and happy." St. Anthony lived 105 years; James the Hermit, 104; St. Jerome, 100; Simon Stylites, 109; Epiphanius, 115; and Romauldus and Arsenius each 120.

Galen, one of the most distinguished of the ancient physicians, lived 140 years, and composed between 700 and 800 essays on medical and philosophical subjects; and he was always, after the age of 28, extremely sparing in the quantity of his food. The Cardinal de Salis, Archbishop of Seville, who lived 110 years, was invariably sparing in his diet. One Lawrence, an Englishman, by temperance and labor, lived 140 years; and one Kentigern, called St. Mongah, who never tasted spirit or wine, and slept on the ground, and labored hard, died at the age of 185. Henry Jenkins, of Yorkshire, who died at the age of 169, was a poor fisherman, as long as he could follow his pursuit, and ultimately he became a beggar, living uniformly on the coarsest and most sparing diet. Old Parre, already famous, who died at the age of 153, was a farmer of extremely abstemious habits, his diet being solely milk, cheese, coarse bread, small beer, and whey. At

the age of 120, he married a second wife, by whom he had a child. But being taken to court by the Earl of Arundel, as a great curiosity, in his 152d year, he very soon died, as the physician decidedly testified after dissection, in consequence of a change from a parsimonious to a plentiful diet. Henry Francisco, another famous case, lived to about 140 in this country, and was, except for a certain period, when he became attached to ardent spirit, "remarkably abstemious, eating but little, and abstaining almost entirely from animal food" his favorite articles being tea, bread and butter and baked apples. A Mr. Ephraim Pratt of Shutesbury, Massachusetts, who died at the age of 117 years, lived very much upon milk, and that in small quantity; and his son, Michael Pratt, attained to the age of 103 years, by similar means. Indeed, great longevity has occurred in no instance with which I am acquainted, where the individual was not a pattern of abstemiousness in diet. Great eaters never live long. A voracious appetite is a sign of disease, or of a strong tendency to disease; and not a sign of health, as is generally supposed. Ill health as infallibly follows the indulgence of such an appetite, as any other effect its legitimate cause.

Dr. Cheyne was a celebrated English physician, who flourished more than a century ago. In the early part of his life, he was a voluptuary; and before he attained

to middle age, he was so corpulent, that it was necessary to open the whole side of his carriage, that he might enter; and he saw death to be inevitable, without a change of his course. He immediately abandoned all ardent spirit, wine, and fermented liquors, and confined himself wholly to vegetables, milk and water. This course, with active exercise, reduced him from the enormous weight of 448 pounds, to 140; and restored his health and the vigor of his mind. After a few years, he ventured to change his abstemious diet, for one more rich and stimulating. But the effect was a recurrence of his former corpulence and ill health. A return to milk, water and vegetables restored him again; and he continued in uninterrupted health to the age of 72. His numerous works are full of most earnest exhortations to temperance in all respects. As to eating, his aphorism was—"A constant endeavor after the lightest and least of meat and drink a man can be tolerably easy under, is the shortest and most infallible means to preserve life, health, and serenity." He recommends the following quantity of food and drink as sufficient for a healthy man, not following a laborious employment, viz: eight ounces of meat, twelve of bread, or other vegetable food, and about a pint of wine, or other generous liquor, per day. Invalids, those of sedentary employments, and students, he says, must reduce this quantity, if they wish

to preserve their health and freedom of spirits long.

Lewis Cornaro was a Venetian nobleman, who, by gluttony and dissipation, became so reduced, that at the age of 35, he was given over by his physicians. By their advice, however, as a last resort, he reduced his diet to twelve ounces of solid food, and fourteen ounces of wine, per day. The consequence was, not merely a restoration to health, but an almost uninterrupted continuance of it, with a most delightful serenity of mind, to one hundred years of age, as he has beautifully described it in a little treatise on the subject, abridged from the writings of Cornaro, by Mr. Daggett, formerly principal of the Foreign Mission School at Cornwall in Connecticut. This gentleman also testifies, that at the age of 58, he had found less than 12 ounces per diem, and none of it animal food, abundantly sufficient for himself. Cornaro was prevailed upon at a certain time, to increase the quantity of his solid food only two ounces, and his liquid food about as much, and the consequence was, a serious fit of sickness. As he grew quite old, he reduced his food so much, that it is said he lived several days upon the yolk of a single egg.

The opinion of Mr. Abernethy, one of the ablest English physicians of the past, concerning Cornaro's system of dieting, is thus expressed: "When patients apply to me, I offend them greatly by telling them

they have their health in their own keeping. If a man were to do as Cornaro did, he would be rewarded for it by a long and happy life. The principal beauty of Cornaro's life was the happy state of mind in which his continued temperance preserved him. Now what I propose as a diet, is Cornaro's diet; and it is no fanciful system. The diet should always be of a moderate quantity; it should not be wholly vegetable or animal, but it ought to be of a nutritive kind."

During his composition of the celebrated treatise on optics, Sir Isaac Newton confined himself entirely to bread with a little sack and water.

President Edwards says in his diary; "I think I find myself much more sprightly and healthy both in body and mind, for my self denial in eating, drinking and sleeping."—Again, July 7–1722." By a sparingness in diet and eating (as much as may be) what is light and easy of digestion, I shall doubtless be able to think clearer and gain time, first by lengthening out my life. Secondly, I shall need less time for digestion after meals. Thirdly, I shall be able to study closer, without wrong to my health. Fourthly, I shall need less sleep. Fifthly, I shall seldom be troubled with the head-ache."

Another able medical writer, in his recent work entitled, "*Sure Methods of improving Health and prolonging Life*," &c., has drawn out these rules in a still

more particular manner. He gives the following general rule as to the quantity of food, which he judges will be found best for the preservation of health, and the prolongation of life, in the weakly, the sedentary, the invalid, and the aged.

Breakfast.	Bread or biscuit, and butter,	Four ounces.
	Tea, &c. in dilution	Eight Do.
Dinner.	Bread or other vegetables,	Two Do.
	Meat,	Seven Do.
	Light wine or Malt liquor,	Six Do.
	Water,	Two Do.
Tea.	Bread or biscuit, and butter,	Three Do.
	Tea or other liquid,	Eight Do.

In all, during the day, sixteen ounces of solid food, and twenty-four ounces of liquid. Dyspeptics, whose digestive powers are greatly weakened, he says, must reduce this quantity; and Dr. Johnson says, that such "will often derive more nutriment and strength from four ounces of gruel every six hours, than from half a pound of animal food and a pint of wine."

In respect to those who are in perfect health, and take much exercise, or labor hard, the author of the "Sure Methods, says," that their "solid food may be increased to twenty ounces, and their liquid to forty; but hardly beyond that with safety."

Interesting Historical Facts. Abernethy gives the case of an English Quaker, whom he advised

to eat but twelve ounces a day. The Quaker afterwards wrote him:

"By following thine advice, I have got rid of what thou didst consider a very formidable local malady; and upon thy allowance of food, I have regained my flesh, and feel as competent to exertion as formerly, though I am not indeed so fat as I used to be. I own to thee, that as I got better, I thought thy allowance rather scanty, and being strongly tempted to take more food, I did so; but I continued in the practice of weighing myself, and found that I regularly lost weight upon an increased quantity of food, wherefore, I returned to that which was prescribed to me."

Pythagoras, who never ate to fulness, lived a hundred years. Zeno lived to the age of 98 years, and was never sick. To his great temperance and moderation, he owed his continued flow of health. John Wesley was remarkably abstemious in his habits, and yet his life was long and laborious. Dr. Rush, though feeble in body, and with a tendency to consumption, performed great labors, and lived to a good age. He was very temperate in eating and drinking. The testimony of Dr. Franklin is strongly in favor of a simple and abstemious diet. He says, "When about sixteen years of age, I happened to meet with a book written by one Tryon, recommending vegetable diet. I determined to go into it. My brother, being yet unmarried,

did not keep house, but boarded himself and his apprentices in another family. My refusing to eat flesh occasioned inconvenience, and I was frequently chid for my singularity. I made myself acquainted with Tryon's manner of preparing some of his dishes, such as boiling potatoes, rice, making puddings, and then proposed to my brother that if he would give me weekly one-half the money he paid for my board, I would board myself. He agreed to this, and I found I could save one-half of what he paid me. This was a fund for buying books. But I had another advantage. My brother and the rest, going for their dinner, left me alone, and, quickly despatching my light dinner, which was often *no more than a biscuit or slice of bread, a handful of raisins*, and a glass of water, I had the rest of the time for study, in which I made greater progress from the clearness of head and quicker apprehension, which attends temperance in eating and drinking."

Striking but Common Cases. I remember in my childhood a clergyman, Rev. Mr. S———, neighbor of my father, was distinguished for monstrous eating. I cannot say that the story is true, but some of his parishioners declared, that during an evening sitting, he had eaten more than a peck of apples. He was very fond of a particular kind of short-cake which my mother made. He used to declare that sister L. could

beat all the women in the church making short-cake. I believe I am not guilty of exaggeration when I say, he used to eat, at our table, of this kind of bread, enough for five laboring men. Now this good Elder was a famous temperance man, and used to deliver himself eloquently on "temperance in all things." Possessing a wonderful constitution, and taking much out-door exercise, he did not give way at once. When I became a physician, and was visiting the old homestead, he had a consultation with the "young doctor" about his ears. All his senses had become dull, with the exception of the appetite for short-cake. He had become very deaf. I remember how his eyes flashed, when I told him, the difficulty was an eruption of short-cake at his ears. This was a good man, and if he had eaten one-half, or one-third as much, would have lived ten years longer, and added indefinitely to his enjoyment and usefulness.

But the evil did not stop here. He had three sons. These were much like him in person, and terribly like him in appetite. Some people do not believe in the transmission of special appetites, but I am sure, in this case, the passion for short-cake came from the father to these boys with the directness and force of an air-line rail-way. They have ever proved equal to a full plate of this favorite bread; and as to apples, their capacity, is even to this hour, cherished among their

friends as an open problem. These boys inherited from their father remarkable vigor of constitution. In size, strength and agility, I am not acquainted with a family so well endowed by nature. But, before forty years of age, each had become grey, stooping, and in great part toothless, and in other ways prematurely old. Each in his turn will perish a sacrifice on the altar of short-cake.

The Good Deacon. A good deacon, in the same church, vied with the elder as a large eater. As I recall it, I can scarcely believe their monstrous eating was the subject of pleasant discussion and raillery among their friends. I have heard wagers offered, that one could beat the other. The deacon, before he was forty-five, although naturally of the finest constitution, had become an old man, without teeth, with bad breath, with health so feeble and unreliable that he was by common consent, placed on the invalid list. Only one power of his system maintained itself, and that was his appetite and capacity for enormous eating; though, at length, this became fitful and uncertain. Before his death, nothing but an invitation out, where, surrounded by the various provocatives of a first-class farmer's table, could he rally himself and grapple with the foe, as was his wont, in younger life. He had a son, to whom he transmitted a morbid appetite of un-

controllable power. While still young, and surrounded by the best moral and religious influences, he became a victim to gluttony, whiskey and tobacco.

Our Thanksgiving Dinners. What an institution is our New England Thanksgiving! The loved ones are gathered from far and near, to sit once more around the old family board, and, with father and mother, now becoming old and tremulous, to recall the joyous days of the past, and to renew their mutual love. This is all very beautiful, and constitutes in its social and moral influence, one of the most precious institutions of New England life. But, what a sad contrast between the beautiful sentiments which call them together and the shameful gluttony which follows.—Not only does every one become stupid by the gormandizing which the good mother is not willing should rest with one course, but which must be carried on through two, three, or four courses; but the doctors will tell you that from this thanksgiving dinner comes a rich harvest to them.

If the people, who stuff themselves on thanksgiving day were, instead, to get drunk, the evil, in almost every case, would be less. A drunken spree makes one very foolish and bestial for a day, but you never hear a man say a fortnight afterward, "I have not seen a well day since that spree." And yet, I have

heard hundreds say, "I have not seen a well day since thanksgiving."

Why will you treat your children thus when they come back to the old home nest? Do you say, "they are not obliged to eat what I place before them." But did you ever know them, as children, as youth, or later in life, to resist such temptations? Do you not know, when they have eaten a large plate of roast turkey, potato, and bread, that they have eaten enough? That if they eat nothing more, not only would their heads be clearer, and hearts warmer for the social activities which are to follow, but their health, on returning to their homes, would be much better? As you love them, why will you place before them temptations which you know they will not resist? Wisely and firmly you have excluded from your table and sideboard, intoxicating drinks. In the same moral strength, why can you not exclude that host of appetizing compounds which constitute such a ruinous temptation?

THE DYSPEPTIC WILL DO ANYTHING BUT EAT MODERATELY. The dyspeptic will visit Europe to consult some eminent doctor; he will swallow fabulous quantities of disgusting mineral waters; he will submit to emetics and cathartics; and in brief, will do anything, however disagreeable, painful, or expensive—everything but one—eating moderate quantities of plain food.

What would you think of a drunkard who seeks a medicine for the redness of his nose? And what would you think of the doctor who advises some wonderful pill, or a season at Saratoga for the inebriate's inflamed eyes? And yet I assure you, it is just what the physiologist thinks of the same expedients for the hundred and one ailments which grow out of excessive eating! Nothing can be more absurd than the conduct of the dyspeptic, who runs after doctors, swallows patent medicines, and makes long journeys, to cure, what three times a day he is producing and reproducing. I like the anecdote told of Abernethy:— A distinguished Duke waited upon that blunt but excellent physician, with reference to a disease of his eyelids. He said, "Doctor, I am afraid there is serious mischief here," touching his eyes. The doctor, who had a great horror of talking patients, said, "My Lord, if you will keep silent and let me do the talking, I will tell you what your trouble is. Your disease is not where you think it is. The real malady is here," touching his Lordship's immense stomach. "Your kitchen is foul, and of course, the poisonous effluvia will ascend to the garret. In your case, it shows itself in the eyes. Now if you will clear the kitchen, the garret will require no special purification. You must do, my Lord, as the great Duke of Wellington has done in several of his famous sieges, cut

off the supplies, and the enemy will leave the citadel."

Illustrative Case. Let me give you an example. Not long since, a young man called upon me, with numberless aches and distresses. He was dizzy and half sick in the morning; sleepy after dinner; and restless at night, with terrible dreams. He had constipation and pain in the back; sour eructations and sense of heat at the pit of the stomach. But worse than all this, he had desperate hypochondria. Without referring to my record of cases, I cannot give full particulars of his case, but, I remember he told me, that he had been doctoring for a year, had taken several boxes of pills, quantities of tonics, and had recently been trying a famous dyspepsia remedy. He had now given up all hope, and only wished he was dead. I asked him about his habits. He replied, "Oh, they are the very best. I have read several works on health, and have given the most careful attention to health rules. I bathe, and walk several miles every day." I asked him about his diet. "That is all right." "What do you eat for breakfast?" "A bit of steak, just a few fried potatoes, a biscuit, a very few warm cakes, and a single cup of coffee; cold water makes me sick." "Do you drink the coffee strong?" "Yes, just comfortable, I don't like slops." "Well sir, what for dinner?" "I take a plate of

soup, a trifle of fish, just a little roast-beef, a very few vegetables, and a bit of pie or pudding." "Well, what for supper?" "A very little cold roast, a biscuit or two, and a cup of tea." "Do you take the tea strong?" "Yes, I don't like slops." "Well, is this all you eat?" "Sometimes when I feel a little faint, I lunch on a few crackers, and a glass of ale. I am very temperate and careful in all my habits. I know with my stomach I must be so." I said to him: "My dear fellow, if you will stop your drugs, and stuffing, and eat only what I advise, you will get well." "But, doctor, will you starve me on bran-bread?" "Not a bit of it; I will prescribe food for you that will make you stronger, by half, in a month. Your diet must be the following: A piece of unleavened cracked-wheat bread, about as large as your hand, with a baked apple, for breakfast; twice as much bread of the same sort, for dinner, with a saucer of cracked-wheat and milk, and two or three baked apples. Eat nothing for supper, and go to bed at eight o'clock. In a month, you will be somewhat thinner than now, but you will be cured of your horrors, of your acidity of stomach, of constipation, and feel yourself a new man." "But, doctor, how am I to sit at the table, and see all the good things before me, and eat nothing but bread and apples?" "It is a little hard at first, but you will soon really enjoy the self-

denial, and pity those who are stuffing and killing themselves." "But," asked my patient, "don't you think there is some medicine I could take, and get well without resorting to such terrible starvation as this?" "You are quite mistaken. It is not starvation. The amount of food I have advised, is as much and as rich as your stomach can digest at present; and you must remember that it is not the quantity of food you eat, that determines the strength, it is the amount well digested. One ounce well digested, will give you more strength than ten ounces, which undergo the morbid changes of the dyspeptic stomach."

There is hardly a day that I do not have a similar conversation with some poor gormandizer. As I have said, these poor creatures take bitters, pills, and doses, resort to the gymnasium, make journeys to the country, are willing to do and suffer anything you can name, except one—the one simple and only thing that will cure them, viz: *eating plain food in moderate quantities.*

How shall we determine the Quantity of our Food? Dr. Philip and Dr. Paris recommend, that "the dyspeptic should carefully attend to the first feeling of satiety. There is a moment when the relish given by the appetite ceases; a single mouthful taken after this, oppresses a weak stomach. If he eats

slowly, and carefully attends to this feeling, he will never overload the stomach."

Many have urged this as a safe rule, but I have no confidence in it. Surrounded by social friends, with the morbid appetite spurring on, the dyspeptic (and by the term "dyspeptic" I mean all whose stomachs are not healthy) will eat twice as much as he should, without observing that nice shade of change in the relish of food to which Drs. Philip and Paris refer. When these learned gentlemen say that "there is a moment when the *relish* given by the appetite *ceases*," they do not mean to say that after that moment, food is not relished. If they do, they must use the word "relish" in some peculiar and restricted sense. The dyspeptic does enjoy every mouthful he eats. If dining at a table where he has to pay for every article separately, he enjoys the eating to his full, so intensely, that although his purse may be a small one, he will call for another and still another dish, until he is surfeited. Without dyspepsia, I can myself, eat twice as much food as I should, and every mouthful with relish.

The language used by these gentlemen, in their rule for determining the quantity of food, may have been to them significant, but I confess I do not understand what they mean.

A score of eminent physiologists have advised weighing the food. This is a good rule, but scarcely prac-

ticable. If a man were living by himself, and experimenting upon his stomach, I would advise him, perhaps, to resort to this expedient. Or if he were a great dyspeptic, and found his appetite uncontrollable, it might prove a good plan. But he would find it inconvenient to take his seat at the table, or to visit the kitchen for the purpose, previous to the meal; either expedient would expose him too much to observation and criticism. In brief, this rule is inconvenient and impracticable.

Prof. Hitchcock's Rule. Prof. Hitchcock, who has given us an excellent work on diet, from which I have drawn many important suggestions, gives us another rule, which he thinks is all-sufficient. It is, to eat of only one dish; or, as he explains it afterward, only "*one course.*" For example, if we eat roast-beef, with potatoes and bread, we may eat as much as the appetite craves of this, but should eat no more; we should not eat of another course, or of the dessert. This is a good rule, and would be a great improvement on the present plan of placing before the glutton a series of successive courses, such as are furnished by our hotels.

Dr. Johnson's Rule. The celebrated Dr. Johnson gives us his opinion on the subject under consideration, in the following words:—

"Whenever his drink induces sensible excitement in the system," says he, "or his food is followed by an inaptitude for mental or corporeal exertion, he has transgressed the rules of health, and is laying the foundation for disease. Any discomfort of body, any irritability or despondency of mind, succeeding food and drink, at the distance of an hour, a day, or even two and three days, may be regarded, (other evident causes being absent,) as a presumptive proof that the quantity has been too much, or the quality injurious.—If a few hours after his dinner he feel a sense of distention in the stomach and bowels, or any of the symptoms of indigestion which have been pointed out; if he feel a languor of body, or a cloudiness of the mind; if he have a restless night; if he experience a depression of spirits, or irritability of temper next morning, his repast [dinner] has been too much, or improper in kind, and he must reduce and simplify till he come to that quantity and quality of food and drink for dinner which will produce little or no alteration in his feelings, whether of exhilaration immediately after dinner, or of discomfort some hours after his meal. This is the criterion by which the patient must judge for himself."

To the same effect in the testimony of Cheyne. "If any man," says he, "has eat or drank so much as renders him unfit for the duties and studies of his profes-

sion, (after an hour's sitting quiet to carry on the digestion,) he has over done."

As a rule for the guidance of dyspeptics, in fixing the quantity of food they should eat, all this seems to me ineffectual. What dyspeptic does not know, after he has eaten too much, that he has committed an error? I once knew a clergyman, who more than fifty times a year, put his finger in his throat after an enormous dinner, to help his stomach get rid of an unmanageable load. What dyspeptic is not sorry over his habit of surfeiting? He prays, and resolves, and re-resolves, but stuffs on. Not an occasional dyspeptic does this, but ninety-nine in every hundred fall into this vice daily, semi-daily, tri-daily, To tell him as Dr. Johnson does, that when his "food is followed by an inaptitude for mental or corporeal exertion, he has transgressed the rules of health and is laying the foundation for disease, is giving him no news. It is simply saying that when he has eaten too much, he has eaten too much. They will all tell you: "Oh, I know that very well, and I am perfectly aware that if I ate half as much as I do, I should get over all my sufferings; I know what I ought to do, but the difficulty is to do it. The table is loaded with the most tempting viands, the friends are social, and press me to eat of this and of that, until I have eaten, what both in quantity and quality I cannot digest.

It is really amusing to read the writings of such grave men on this point. They seem to think that all men eat just what they believe in their sober judgment is best, and that all they need to correct their sad dietetic abuses, is to be told that they must not eat too much.

But, exclaims some one with a large bump of firmness, and small appetite, you do not mean to confess that you eat what you know will hurt you? I will reply for myself: yes! I have done it a thousand times. A thousand times I have taken my seat at the table, with a perfect consciousness that I ought to eat a very moderate meal of the plainest food, and then have gone on to eat of two or three courses, ending with a rich pudding or dessert, and as a consequence have clouded my mind. If, my dear sir, you scorn the idea that you could act so unwisely, the difference, after all, between us, may be that I have attended more carefully than you have, to the effects of food upon the body. If you say you have not been sick at the stomach, or suffered pain, or been kept awake, or had bad dreams, or the head-ache, or fallen into a fever, from your eating, I can say, neither have I! Except a slight attack of ague, I was never sick; but yet, nearly all my life, my powers—physical, mental and moral, have been more or less manacled and crippled by excessive eating. And until I began to practice the rule which I am

about to present for your consideration, I could never say I was free from the dominion of appetite.

In the case of intoxicating drinks, we see the same unhappy weakness. And so impossible is it found to stop at what is called the right place, that we find, nothing will save the majority of men from gross drunkeness, but total abstinence. In regard to eating, we can not practice total abstinence, and so must overcome the weakness of our perverted nature, by moral effort and systematic rules.

THE BEST RULE AS REGARDS QUANTITY OF FOOD. I have referred to the several rules which various eminent authors have given to regulate the quantity of our food. And I have, I trust with becoming deference, given my objections to them all. I shall now submit my own rule. It is this:

BEFORE YOU TAKE THE FIRST MOUTHFUL, PLACE UPON YOUR PLATE ALL YOU ARE TO EAT, AND EAT BUT TWICE A DAY!

This rule accomplishes all that the practice of weighing our food does, for soon the eye can determine, with all needed accuracy, the quantity, and without the display of a pair of scales.

It is better than the rule of Dr. Johnson and others, which I have given, viz: watching while you are eating, for the first indications of having enough; for as

I have shown, it is almost impossible for a dyspeptic with his morbid appetite, to watch, or halt when he does discover that the food fails to give the intense gratification of the first moment. This is the great difficulty—to use calm judgment and moral firmness in the midst of the absorbing pleasures of a delicious meal. I am free to confess, I have rarely done it, and I think I may without harsh judgment say, I do not know half a dozen persons who can.

But with my rule all this difficulty vanishes; for before the appetite is excited, you decide the quantity. It is very easy, when you rise in the morning, to say, I will this day eat most temperately. It is about as easy after sitting down at the table, to say, I will eat abstemiously, and to decide how much I will eat, by taking the quantity upon my plate; but if you undertake to decide when in the course of the meal you ought to stop, you would, nine meals in ten, do just what nine people in every ten do—eat too much.

With this rule you always avoid the dessert, and the condiments which in the shape of extra salt, mustard, pepper, &c. are almost sure to find their way to your plate during the meal.

With my rule you are sure to enjoy all the advantages of Prof. Hitchcock's rule of one dish, or one course. Indeed, this rule of eating is worth practically more than all other rules which have been given.

I have a voracious appetite, about like the average of men, I think. This rule has proved so important to me that I would not abandon it for thousands of dollars. I commend it not only to all dyspeptics, but to those who have a tendency to consumption. I believe to the latter it will prove a most important preventive, and curative measure.

Testimony about the connection between Food and Consumption. "I am acquainted with the case of a young man, who for some time had been in a very precarious state of health, apparently on the verge of *phthisis pulmonalis*, (consumption,) who has completely recovered, by the use of a diet consisting solely of bread made of wheaten meal, without separating any part of the bran, and using no other liquid but pure water. This simple diet he still uses of choice, and cheerfully foregoes all other luxuries, for the benefits which he derives from it. This diet, might, however, be rendered more palatable, in the estimation of other invalids, without diminishing its salubrity, by adding a little milk to the water; and if desired, a little sugar; and the bread toasted and infused. *With such a diet a prince even might be satisfied.*" Thus writes an esteemed correspondent of Prof. Hitchcock.

Sir James Clark entertained the opinion that improper

food was an efficient cause of consumption from its interference with the due nutrition of the body. He thought food of a proper kind, in excess, also induces especially in youth, that state of body favorable to the development of scrofula. The adaptation of food, both in quantity and quality, to the wants of the body, is a matter rarely attended to. By a too stimulating diet, the stomach becomes disordered, the secretions impaired, the circulation unbalanced, the skin dry and harsh, and, often, as a consequence, tuberculous disease results.

An eminent American author affirms, "that where all the arts of cookery are brought into requisition to tempt the appetite, it not unfrequently produces consumption. Grave errors in diet prevail in infancy, producing destructive consequences by creating a morbid condition of body. Defective food produces that feeble development of the organism which is always associated with the tuberculous diathesis; but superabundant and exciting food produces an equally morbid condition of the body and derangement of its functions, rapidly wasting the vitality. Children thus over-fed are never healthy. Their excessive fulness and redness of face, though often exhibited by fond parents with pride, are the result of pampering and high feeding, and indicate an abnormal and unhealthy condition. If there is the

least tuberculous tendency, such feeding hastens it into activity. Tea, coffee, and solid animal diet in childhood are pernicious. It is a false notion that the scrofulous and tuberculous require high feeding. This often develops the very evil it is designed to remedy."

Dr. Hunt asks, "Is it not strange how people, even the most considerate, trifle with their stomachs. Many a one seems to prefer to take medicine to avoiding it by a proper regulation of the appetite. You may stuff the stomach to the full, year after year, but as sure as effects follow causes, so sure will you reap the accumulating penalty. Our own nation is proverbial for gormandizing, and over-feeding is already beginning to deteriorate the energies of the American people."

Dr. Mussey says, that "large feeding is likely to be followed by disease."

In a convict establishment in Australia, excessive feeding brought on cutaneous eruptions, diseases of the eyes and of the stomach, in many hundred of the prisoners. Short allowance, and work effected a speedy cure.

A physician of extensive practice declares, that he "has never lived through a Christmas or Thanksgiving,

without frequently being consulted for ailments produced by excessive eating." He says, "it would seem as if multitudes thought they had a gluttonous license once a year, and that the most appropriate method of expressing gratitude, was by stuffing the stomach."

Dr. Johnson says that "if we continue to eat as heartily after changing from an active to a sedentary life, some form of indigestion will ensue."

Lola Montez declares, the "ordinary fare of a fashionable lady is sufficient to destroy the brightest and smoothest skin."

Graham says, "it is beyond all question true, that in all countries where human aliment is abundant and easily procured, gluttony and excessive alimentation are decidedly the greatest source of disease, suffering, and premature death."

Diet for Children. Scrofulous children are generally large eaters, while excessive eating produces scrofula. Surfeiting is a common vice among children, producing not only a peculiar cachexia, but resulting in mental stupidity and unmanageable temper. Parents seem to think, their own experience may all go for nothing—that their children must in this most import-

ant department stumble on as if they had no friend to guide them. No matter how morbid the child's appetite, the parent declares, "he shall have what he wants to eat; no child of mine shall go hungry."

I am acquainted with a family, in which about the average amount of stuffing is indulged. To my expostulations, the mother has replied: "I may not be able to give my children as much education as some folks, and I may not be able to give them any property, but as long as we can get it, they shall have what they want to eat." I have spoken of their black teeth, bad breath, eruptions, and frequent sickness. "Yes," she has replied, "I know all that, but would you have me stop them before their appetites are half satisfied, and tell them, 'there, that is all you can have?' No, you may be all right, they may eat too much! but I can't help it; as long as I can get it, my children shall have enough to eat; it never shall be said, that I have starved them." If children desire to attend a dancing party, or the theatre, or to drink a glass of wine, the parent says, No! He has no hesitation in asserting his authority in reference to all violations of law—physical, mental, social, moral and religious—all except one—the child's desire for rich and indigestible food. It may be said that the objectionable articles are on the table, the parents themselves partake of them, and therefore cannot with propriety forbid the child. The

parent does wrong in this bad example, besides injuring his own health, but even this is not a sufficient excuse, for the father does deny his child tea, coffee, and tobacco, while he indulges in them himself; or he allows his son to drink a single mouthful of coffee, and denies him a further indulgence. This indulgence of children at table is an absurd weakness, not to say affectation, utterly inconsistent with manly or womanly dignity and courage.

Every father, every mother should say to each child—"a moderate quantity of the plainest food is best for you. Neither soul or body can flourish on a surfeit." Of course, every explanation and expostulation should be employed. But as a dernier resort, the parent must not shrink from the exercise of his rightful authority. I have spoken thus plainly and at length on this subject, because I deem it of the first importance, and it seemed to me that the obligations of parents was not generally recognized.

But what should children eat? is asked. They should eat bread and milk, or coarse bread and cream, with fruit; or oat-meal, or "diamonds" with butter and fruit, for breakfast. They should eat no gravy, or meat, or buckwheat cakes, or hot bread; nor drink coffee or any other warm drink.

For dinner, they should eat some of the articles mentioned above, with an addition of uucooked fruit.

Some children, who live much in the open air, may perhaps be allowed a moderate quantity of lean meat at dinner time, but no pie or pudding.

For supper—which should come early—a little fruit, and coarse bread with milk.

The quantity for a child from five to fifteen, should be from one quarter to one half as much as a working man eats. The common notion, that when a child is growing, he needs unlimited quantities of food, is an error. It is true that during this period he is adding, perhaps two ounces a day, to his weight, but the quantity he eats in view of this increase of weight, is fearful to behold. The explanation of the excessive eating among children, is this—indulged with a variety of dishes, they eat enormously, which engenders a craving for another large meal, and so on—their youthful and elastic constitutions enabling them to bear the excess without immediate and serious injury. Let them be confined to one or two plain dishes at a meal, and the quantity be determined for them, and let that quantity be a small one; it will soon be found that a growing child does not need to be stuffed, and that his appetite will soon become reasonable. And if the food be very plain, and mostly or entirely vegetable, it will soon be observed that the child's teeth are whiter, its breath sweeter, its skin clearer, its tongue cleaner, its eyes brighter, its sleep quieter, its brains sharper, and its

temper more amiable. There are few changes in the management of children which would prove so beneficial as that from the present mode of cramming with a multitude of rich foods, to a plain vegetable diet, eaten in regular and moderate quantities.

It is my conviction, matured after many years' observation, that the dietetic errors, among children, which I have so briefly and imperfectly discussed, are second only to *impure air*, in producing the scrofulous cachexia.

I find in a little work, published by the Harpers, nearly thirty years ago, the following colloquy, which seems to be so happily expressed, that I give it entire.

Appropos Dialogue. "Being called, not long since, to visit the family of an old acquaintance, in a professional way, I have thought best to insert in this place the substance of an interview which presents this subject in its true light. My advice was requested in the case of a young lady who was indisposed after a night's dissipation at a fashionable party. I found her reclining in an easy chair, with cheeks flushed, hurried respiration, and the whole countenance expressive of great anxiety. After a few preliminaries, the conversation occurred, nearly as follows :—

"Were you in the usual health till last evening?"

"Yes, nearly, except the anxiety of preparing for the party."

"Did your anxiety destroy your appetite?"

"Oh no, not much; it only kept me a little flurried."

Her father, a plain, honest man, very promptly answered, "She has hardly taken food enough to keep her alive, the last two days."

"Have you slept well at night?"

"Yes, generally, very well."

Her sister, a frank, open-hearted girl, replied, "Why, Jane! we have both of us lain awake, and talked almost all night about the party, ever since we received our invitations."

"How long were you at the party?"

"About three hours."

"At what time did you return home?"

"About one o'clock."

"Did you feel chilly when coming home?"

"Yes, doctor, and before too; for when I sat by the window to rest me, after dancing, I felt as if I was taking cold."

"Did you dance much in the course of the evening?"

"Oh, no, indeed, I never dance much at parties; I only danced *ten times*."

"Did you experience any shortness of breath when dancing?"

(With her hand on her side and panting.) "No, doctor, I never get out of breath; I could breathe last night just as well as I can this moment."

Her sister again says, "Why, Jane! how can you say so? I wonder how you could breathe at all, for you know we broke three strings before you were laced to suit you."

"Did you rest well last night, or rather this morning, after you retired?"

"No, doctor—I had such a pain in my stomach that I could not sleep."

"By-the-way, did you take anything last night to disagree with your stomach?"

"No, not in the least."

"I presume you at least tasted the refreshments?"

"Yes, I ate five or six pickled oysters, and drank a little coffee."

"Did you eat a bit of the tongue?"

"I just tasted it."

"A-la-mode beef?"

"Only a morsel."

"Did you try a bit of the turkey?"

"Just a wing."

"How was the jelly?"

"Very fine, but I only tasted it."

"Did you try the sweetmeats, blanc mange, ice-creams, oranges, custards, and cakes?"

"Only a mouthful of each."

"Mr. ——— is noted for his choice wines. I presume you tasted his champagne and lemonade?"

"I drank two glasses of champagne, and when I was very warm two or three of lemonade!"

"And yet you took nothing to disagree with you?"

"No, not in the least."

"Did you dance after this?"

"Only twice—for I felt fatigued and had a little headache."

"Let me tell you, miss, that your supper and dancing have put you in such a condition, that if you are

able in a month to attend another party, you may be thankful."

"Why, doctor, you needn't say that; for I saw ladies who ate twice as many things as I did, and twice as much of them."

WASTE IN RICH FOOD. Few spectacles are more painful than the struggle often seen among the poor to keep their table supplied with the "best in the market." Foregoing books, periodicals, a good house, good clothes, the healthful luxury of a summer trip, etc., they devote everything to supplying their table. They are ashamed to be seen eating plain, cheap food; not ashamed to live in a poor house, to wear insufficient clothing; to have no library, to have no pew in church, to have nothing, and be nothing, if only their table is well supplied. I declare it is a low, vulgar ambition—pride on the lowest plain of life.

I spent some time, a few years ago, in the hospitals of Paris. I knew several French students—superior, refined gentlemen—recognized leaders among us, who boasted that they lived on seven sous a day; and who would take out of their pockets, and eat for a lunch, in our presence, a piece of coarse, dark bread, and two or three chestnuts. Here, no matter what the circumstances of the family, if a luncheon is sent to be eaten, at school intermission, you may be sure it is composed of pies, cakes, or some other equally vile and expensive

trash. I repeat, it is low and vulgar, and shows that the pivotal fact of our life is to be found in the belly.

A family of parents and five children will expend upon the ordinary diet not less than $500 per year. I can feed the same family a great deal better—they shall have better health, happier tempers, clearer heads, and not wear out half so fast, upon $200 per year. What a library could be purchased in a single year with the saving!

How this great economy is practiced, may be learned in pleasant detail, by consulting a very readable little work, known as "How to Live," published by Fowler & Wells, New York.

I have little hope the information will be sought; the pride over the table is too strong. For myself, I confess, I should rather save in my eating, than in any other indulgence. I had rather save in my palate pleasures, than in the food for my intellectual, social, moral or religious nature. If any of my readers has the same conviction, I would advise him to try a plain diet, mostly vegetable, and if he has no use for the money thus saved, I suggest a gift to the Government in this hour of trial.

When friends meet for a visit, the central fact of the occasion is a table loaded with an endless variety of rich and indigestible compounds, which makes them stupid for the residue of the evening, and half sick for

days afterward. When subsequently they refer to any circumstance of the gathering, they will tell you, it occurred half an hour before dinner, or a quarter of an hour after dinner. Every thing dates from the surfeit. In brief, intellectual, social, and religious interests are all subsidiary to the eating. This entire absorption in the pleasures of the palate, is amusingly shown in a visit among farmers. A half dozen women assemble at a neighbor's house to spend an afternoon, to visit with Mrs. Smith, the lady of the house. But the company is scarcely seated, before Mrs. Smith disappears, and in the course of two hours she comes in all aglow, to announce that tea is ready, "ladies, will you walk out to tea?" An hour after tea, when the company is ready to leave, Mrs. Smith wipes her hands, and comes out of the kitchen long enough to say "good-bye," and to promise that before long she will "come over" to pay them all a visit. And then they go home to suffer the head-ache from the abominably strong tea, they have drank.

I have heard Frenchmen laugh most heartily at our social gatherings. No man or woman of weak digestion can stand them. To visit every afternoon for a week, would exhaust the strongest woman, not because chatting with neighbors is hard, for the tongue is not easily fatigued, but because of the hot biscuit, cake, preserves and strong tea. It is really ludicrous—the

way they attack one of the company who falters. Let her speak of drinking only *one* cup, or *part* of a cup, or having it made weaker, and they all turn upon her as if she doubted the essential article in the religious creed. "What," they say, "you going to give out?" Let her say nay! to any of the six kinds of cake, not one of which an ostrich could eat without a bad taste in the mouth next morning, and the lady of the house at once declares, that she *must* taste of that particular kind, for she has been trying a new recipe and wants her opinion of it. But why need I rehearse what every one is so familiar with? Our social gatherings are a great deal more piggish than human.

Such meetings would be greatly improved by introducing the French custom, of keeping the refreshments in an adjoining room, to which persons in need, may go for a little fruit, bread, or simple drink, and soon returning, join again in the social and intellectual feast, which, among human beings, should ever constitute the principal attraction at all social gatherings.

Eating when Sick. It is the custom among a certain class of people, when a member of the family falls sick, to begin at once, to ask, "now what can you eat?" Every one has heard the old story, of the man, who always ate eighteen apple dumplings when he was sick. On one occasion, when engaged upon the eighteenth,

his little son said, "pa, give me a piece?" "No! no! my son," replied the father, "go away, pa's sick."

When a young man, who has surfeited, in season and out of season, until exhausted nature gives way, and a fever is coming on, the good busy mother is in trouble. She anxiously inquires, "Now, John, what can you eat?" You must eat *something!* People can't live without food!" Then come toast, tea, etc. The stomach is *exhausted*, and no more needs stimulus or food, than a jaded horse needs the whip! What is needed is rest,—complete rest. Nine tenths of the acute diseases might be prevented, by a few days' starvation, when the first indications appear. I don't mean *complete* abstinence in every case, but perhaps a piece of coarse bread, with cold water for drink. If such a policy were generally adopted, what ruin would overtake the medical profession!

The physical as well as the spiritual man would be greatly purified by abstinence or extreme abstemiousness during Sunday. If I were asked what I thought would most improve the religious exercises of the Sabbath, I should reply, "*Let the people eat almost nothing on that day, and let them have pure air in the church.* This, I am sure, would do vastly more for the souls of the congregation, than all the Hebrew which has cost the pastor so much time and labor.

I trust I shall not be understood as speaking dis-

paragingly of religious teachers or teaching. The pulpit is an immense power for God and humanity, but, unfortunately for parishioners, the pastor rarely preaches from the text:—

"I beseech you, therefore, brethren, by the mercies of God, that ye present your bodies a living sacrifice, holy, acceptable unto God, which is your reasonable service."

Other texts, found in the sacred scriptures, are equally earnest in urging as a christian duty the purification and sanctification of the body.

Every man has within himself five natures, if you please—the physical, intellectual, social, moral, and religious. Christ died on the cross to save man. Some people say he died to save the *soul* of man. He died for no such *partial* purpose. He died to save *man!* To save the *entire* man—to redeem, elevate, purify and glorify the *body* not less than the *soul*. Christ died to save us from dyspepsia, not less than from profanity.

Under the inspiration of this great salvation, initiated in the cross of Christ, "I beseech you by the mercies of God, that ye present your bodies a living sacrifice, holy, acceptable unto God;" and rest assured, that the service you render in a conscientious observance of the laws of health, is not a whit less acceptable to Heaven than the most solemn prayer.

Vegetarianism. Not only in regard to tubercular disease, but in reference to general health and long life, physiologists are divided on this subject. The practice of the most civilized peoples is in favor of a mixed diet. But it must be admitted, that a large proportion of the inhabitants of this planet live almost exclusively upon vegetable food. Which of the two classes is most healthy and long-lived, it is perhaps impossible to determine. And if it were possible, still, the fact would not be decisive, because, food is only one of the factors which go to make up human life.

The champions of vegetarianism claim that the Irish and Scotch, who live almost exclusively upon vegetable food, are more vigorous and enduring, as laborers and soldiers, than the English, who use much animal food. It is not denied that the Russian soldier, whose food is extremely coarse, and almost entirely vegetable, is more hardy, and recovers from graver wounds, than soldiers of meat-eating nations.

"The American people are the greatest eaters of animal food. The pork consumed in the United States is three times the quantity consumed by the same number in Europe, if statistical accounts are to be believed. Animal food is generally set on the table three times a day in the Western country. An

Irishman writing home and extolling the luxuries of his condition in the New World, added, by way of a clincher, that he commonly took meat twice a day; upon which his employer asked him why he did not state the whole truth. He replied that if he had said three times, all of his friends would have believed that he lied. This was going a little too far for common credulity. But after all, the Americans are a spare, hungry-looking people, not appearing as if well nourished. The inhabitants of Northern Europe and Asia are physically and morally weak, though living mostly on fish and flesh. The strongest men in the world, of whom we have any account, are the porters of Smyrna, who never taste flesh. The South Sea Islanders are very powerful men, and live mostly upon a diet of vegetables and fruit. It is said that the soldiers of Greece and Rome seldom tasted meat, though qualified by physical courage and endurance for the conquest of the world. The suspicion is quite strong that Jonathan would gain flesh and improve his appearance, by substituting bread and vegetables for a part of his animal food."

Able works, presenting the claims of vegetarianism, have been written by learned and philanthropic men. To these works I refer those who are interested in the subject.

Diet For Consumptives. Whatever opinions may be entertained with reference to the use of a flesh diet, for mankind in general, I think there can be no serious argument in respect to the diet of consumptives. For them, a substantial, nutritious, unstimulating diet—which means one with little or no animal food—is best. I know the fashion of the hour—it is porter, beef, and whiskey. I might hesitate in pronouncing against this stimulating practice, and in favor of an opposite policy, if I were not aware that the ablest writers on the treatment of consumption, on both sides of the ocean, have strongly advocated, on behalf of consumptives, a plain, unstimulating diet. Among the standard authors, in this department of medical practice, almost every one declares for this policy. One of the best American authors says:—

"The truth is, the loss of flesh is not ordinarily referrible to defective diet, but to the influence exerted over nutrition by the disease which is going on in the lungs; and in proportion as the action of this is lessened—which is best effected by a mild diet—will be the improvement in the nutritive function.

A mild, farinaceous and milk diet, I consider to be generally best adapted to consumptive subjects, and its quantity must be varied according to circumstances. For example, other things being equal, one who was mostly confined to the house, would require, and be

capable of digesting less food than another who passed much of his time in exercise in the open air. It should ever be remembered that the healthful nourishment obtained from food, is not in proportion to the quantity taken into the stomach, but to that which is digested perfectly and with facility.

Few articles have enjoyed a higher and more permanent reputation, as a diet, in consumption, than milk. It appears to hold a rank intermediate between vegetable and solid animal food. It is quite nutritious, in most constitutions readily assimilated, and occasions less vascular excitement than flesh, and hence seems peculiarly adapted to most cases of consumption. If, therefore, milk is agreeable to the palate and stomach, it may be viewed as a fortunate circumstance, since little difficulty need then be apprehended in regulating the diet."

Sir James Clark, author of the ablest work in our language on consumption, declares :—

"The cases likely to be cured by the stimulating plan of treatment,—by the beef-stake-and-porter system,—bear so small a proportion to those which would be injured by it, that I do not consider it deserving of further notice. Many more patients have been preserved by the early adoption of a milk and vegetable diet, with a residence in the country;

and the instances are numerous in which this regimen, adopted in the commencement of tuberculous disease, has proved more serviceable than any other."

Some consumptives eat enormously without apparent inconvenience. This has led to the supposition that in this disease the patient may be allowed to eat any thing and every thing he craves, and in any quantity. Roast beef, porter, fat pork, and other stimuli, are constantly advised even for patients with a pulse above one hundred. "No idea is more fallacious, or productive of more mischief," says Morton, "than the popular belief that the strength of the patient is supported in proportion to the quantity of aliment, he may take into the stomach; often it acts as an irritant, leaving the whole system overcharged and enfeebled."

J. C.—aged 26, a brilliant young lawyer, had symptoms of phthisis. He was weak, irritable, and daily growing thin. Upon consulting his physician, he was advised to eat plentifully of beef, and to drink "pure bourbon." Still failing, he came to me. I found in the left subclavicular region unmistakeable evidence of tubercular deposit. His pulse was ninety-six at eleven o'clock, A. M.,—general condition wretched. I ordered a diet of bread and milk for breakfast, coarse bread, cream, and fruits, for dinner, and for supper, abstinence, with bed at eight o'clock.

A series of special exercises—which appear in this work—and a daily bath were instituted; out-of-door sports and cheerful society enjoined, with freedom from business cares. In six weeks his pulse had fallen to eighty, his spirits and a healthier color had returned; he had increased in weight, and his nocturnal restlessness had given place to refreshing sleep. Three years after, with the exception of a slight dullness on percussion over the apex of the left lung, he seemed in perfect health.

The practice of prescribing rich food, bourbon, and porter, for incipient consumption, has become common. It is really strange that the temporary fullness, heightened color, and increased weight, which sometimes follow this regimen, should deceive any body. The observations of the most thoughtful practitioners go to show that there is no chronic malady in which the forcing processes are more injurious, and in which a plain, nutritious, unstimulating diet is more beneficial.

Let me speak in a practical way. A poor woman dressed in the habiliments of poverty, comes to ask my advice about her lungs. At a glance I see she has been starved. The conversation brings out shinbones, poor soups, cheap breads, and other innutritious stuff. I examine her lungs. No doubt of tuberculous deposit. Now, here is a case for substan-

tial, nutritious, and gently stimulating food. She has been over worked. I order rest. My second patient is a fashionable lady. The stethescope tells the sad story. The conversation is full of beef, coffee, and bourbon. Her doctor has warned her against night air, open windows, cold bathing, and fatiguing exercise. She is taking cod-liver oil. I say to this woman, "Madam, you are killing yourself. You must eat bread and milk for breakfast; or, if this don't agree with you, take oat-meal porridge, or unleavened brown bread, with cream and baked fruits. For dinner, a slice of cold roast, with potatoes, cracked wheat, or 'diamonds,' with cream and fruits ad libitum; and bed at eight o'clock, for supper. You must live in the open air, and sleep with open windows, no matter about the weather. You must bathe in cold water, after which your skin must be rubbed till it is as red as a boiled lobster. You must use an open fire, dress like a christian, and exercise freely."

All who have been starved into consumption must be feasted. All who have been feasted into it must be starved. And yet for the surfeited class, the plain diet contains ten times as much nutriment which they can assimilate, as the old stimulating one. The bourbon and similar things produce a temporary excite-

ment which only helps to hasten the pulse and the disease.

I say to my consumptive patients almost uniformly, while the pulse is quicker than natural, you must eat little or no meat and no gravies; you must drink neither coffee nor tea; you must avoid sweetmeats, pastry, pickles, and other trash, as well as hot breads. You must eat coarse bread and milk, bread and butter, baked apples and other fruits, for breakfast. For dinner, a little beef or mutton, (if your pulse is not too high,) with bread, potatoes, cream, and fruits. Instead of taking supper, take your bed at eight o'clock.

This diet is not given as exclusive of all others, but as suggestive of the best. This advice is designed for those who really desire to get well, and have the pluck to leave the beaten track.

An Average Boarding House. A few years ago I was one of seven boarders in what is called a first-class boarding house. Beside my wife and self, I do not think any one of the company was quite well. The English gentleman who sat at my left, was a great sufferer from vertigo, and was in constant apprehension of apoplexy. His excellent wife was afflicted with an unseemly eruption of the face, and periodical headache. Farther down sat a pale, elegant gentle-

man, whose descriptions of his sufferings from dyspepsia were painful to hear. His sister, who sat at his side, used to say, that her brother thought his dyspepsia a terrible affair, but if he could bear, for a single hour, the agonies of her indigestion, he would be thankful to return to his own sufferings. Both were afflicted with a hard, deep cough. Our remaining boarder was a young fellow who spent his two thousand a year on his appetites, and suffered greatly from what is called "*biliousness*."

We had three or four courses at dinner, and, unless in the midst of a "*bad turn*," each one of the five faced the enemy like veterans, never flinching until the last foe was slain.

I was "*moved*" to speak on the subject of human food. The discussion grew warm. My English friend *knew!* he had tried the starving plan. It might be good for some folks, but it would not do for him. His wife had tried brown bread, and her face had grown worse all the time.

But as a man who eats and drinks temperately can keep his temper, and as I had the truth on my side, I carried the day, and induced all but our young sprig with the two thousand dollars a year, to try the new plan. Coffee and tea were thrown out ; we ate but twice a day ; no one ate more than I did,—this was

less than one half their previous quantity,—and all desserts, except a little fruit, were avoided.

In less than two months the vertigo was gone, redness of face entirely gone, periodical headache much relieved, and the dyspepsia and cough non est inventus. They could hardly believe it. Was it possible that all their lives they had been eating twice as much as they could digest.

They labored, in turn, with our young sprig, but he invariably ended the argument, with, "As long as the old governor comes down with the shiners, I shall give the ponies full play."

What an abomination our hotel and boarding house tables are. While returning from Europe in the "Baltic," I picked up the bill of fare for the "Captain's dinner," and have it before me now. If the vile, indigestible, French compounds were printed in this book, they would cover at least three pages. Think of it! On board ship; no exercise; nearly all except the crew more or less deranged in stomach with the motion of the ship; needing nothing but *a little coarse bread, fruit and lemonade*, and yet sitting down to a table loaded with a hundred indescribable compounds, each swimming with grease! No inconsiderable part of the sufferings from sea-sickness may be traced to this stupid and almost malicious management

of the table. What Company will inaugurate a new policy? I shall soon visit Europe again, and I will give fifty dollars additional passage money for the pleasure of seeing the company sit down to plain coarse bread, delicious fruits, and cool lemonade.

COLDS.

"Feed a cold and starve a fever," is a favorite saw. With people whose reason is stronger than their appetite, and who have had any experience, it is unnecessary to discuss this foolish adage. Both colds and fevers should be starved, and while it is more important to starve the latter, the former is very happily affected by abstinence. A cold in the head, with discharge from the nose, and sense of fullness, with headache, is sensibly lessened by the omission of a single meal. If the sufferer live twenty-four hours upon a slice or two of coarse bread, and take an occasional glass of water, he will then be prepared to defend the policy of starving a cold.

While a cold is never the cause of consumption, it frequently rouses into activity tubercles already exist-

ing in the lungs. Those who have consumptive taint should protect themselves against colds. The most effective means in securing this protection is bathing and friction. While the surface has a vigorous circulation, colds are impossible. The cold-bath, with the use of rough towels, flesh-brushes and hair-gloves, contributes most effectually to the maintenance of such a circulation.

Avoidance of hot drinks is another important preventive measure. The usual draughts of coffee and tea produce much susceptibility to colds. Consumptives should, for this reason, use cold drinks. Sleeping and sitting in well ventilated rooms is another most important prophylactic means. Furnace-heated and unventilated houses create a liability to colds, to say nothing of the direct influence of the vitiated air.

Many colds are taken through the feet. A frequent cold-water foot-bath, with sharp friction and slapping with the hands, can scarcely be overrated. Stamping the feet, or, if so circumstanced that the noise is objectionable, standing on one foot and kicking with the other, in many directions, in the air, greatly improves the circulation. For a discussion of the best boots and shoes, the reader is referred to the article, "*Our Shoes*."

CONDIMENTS.

Civilized man uses a great number of substances, known as condiments, mainly to increase the appetite, and relish for food. Those best known, are salt, pepper, spice, ginger, cinnamon, nutmeg, cloves, mustard, oil, etc. Only the steward of a large hotel, or first-class ocean steamer, knows what immense quantities of these articles are consumed.

A few vegetarian reformers avoid these condiments. All others use them more or less with every meal. There is, perhaps, no well defined notion in reference to the part they play in the animal economy, but every thing is condimented, or it would be flat and tasteless. I do not understand the effects of these condiments beyond the temporary stimulus. But even this is a somewhat serious objection, as beside the irritation of the mucous lining, it greatly serves to increase the quantity of food eaten. I do not believe that a single one of the articles known as condiments, is necessary to health, with, perhaps, the exception of salt. I have no doubt, the whole of them are more or less inimical to the highest physiological conditions. When the appetite flags, and the cold roast fails to stimulate the palate, a little mustard will whet the appetite, but under such circumstances it is never best to force upon the stomach what the palate does not gratefully accept. It is but another form of the old practice of forcing

the stomach with the preparatory grog. In a state of nature and perfect health, a man no more needs pepper than the deer or the eagle, and with an unperverted taste, he would no more desire it. If he has habituated himself to the use of such stimulating appetizers, his condition is certainly not the most desirable.

The castor ought never to appear on the table. It contains nothing which is not more or less mischievous. I trust I shall not be misunderstood; I do not mean to say that condiments are deadly poisons; I only mean to say, that in the highest health they are unnecessary, and must ever affect, more or less mischievously, the stomach, and the tissues generally.

Salt. I have a friend, who believes the excessive use of salt has much to do with that morbid, irritable condition of the solids and fluids which characterizes phthisis pulmonalis.

Salt, as an article of human food, has been much discussed. Those who claim it is necessary, bring many facts to sustain their position. For example, animals in a state of nature, and therefore without those morbid cravings which a false civilization engenders, are so fond of salt, that they seek it in journeys of hundreds of miles, and amidst the greatest difficulties and dangers. The hunter has learned that, although the deer may be frightened away, still, if he

wait patiently, the poor creature's hunger for salt is such that it will soon return. Many birds have such a craving for salt, that, forgetting their timidity, they fly into the immediate presence of the sportsman, upon a salt marsh. Our domestic animals show the greatest avidity for salt. Can we deny, that all this *tends* to prove, that it is not a poison? The advocates of salt bring forward a number of facts, gathered from observation among the native tribes of Africa and South America, showing that the desire for salt is uncontrollably strong, even among the little children of these natural tribes. But so far as the question of poison is concerned, I should prefer to rest the argument upon facts gathered from the lower animals.

The physiological chemist informs us, that salt is found in nearly all the tissues of the body. The readers of history will remember, that criminals are said to have been tortured to death—eaten alive by worms—because deprived of salt.

The argument against salt is based on physiological hypothesis, and upon facts showing the effects of its excessive use. As to the latter, the advocates of salt would not make issue.

For myself I never eat more of this condiment, than finds its way into the food while in the kitchen; but I believe that a moderate use of it is not only harmless, but, perhaps, necessary to health.

I am sorry I cannot quite agree with the dietetic reformers on this subject. As a class, these laborers are so conscientiously and usefully engaged on behalf of human health, and so much have they been ridiculed, that I feel it an honor and privilege to range myself with them. But I believe, the crusade against salt, is one of those instances of special pleading, into which reformers, devoted to a special work, are prone to fall. I take the liberty to refer those, who would investigate the subject farther, to "Johnston's Chemistry of Common Life."

DRINKS.

The subject of drinks is one of much importance in its bearing upon the causes and treatment of diseases of the pulmonary apparatus. Alcoholic stimulants, which in a multitude of forms have been advised, I discuss in another place. In this place I desire to call attention to tea and coffee. That both of these injures the stomach, more or less, cannot be doubted. Who would think of giving these drinks to a candidate for the prize ring? Trainers of pugilists by instinct

understand this subject. The influence of tea and coffee upon the nervous system is too familiar with most people to need description. Calfskin is soon tanned in strong green tea. The effect of this narcotic beverage upon the women of America is painfully obvious. Nearly twenty years ago, while practising my profession in the State of New York, I frequently met three or four middle-aged or old women, and during several hours had opportunity to observe them closely. If some time had passed since they had partaken of tea, they were unsocial and irritable. Their eyes would not sparkle, except on hearing the question, "I wonder when tea will be ready?" When they had drank their two cups "that would hold up an egg," what a loosening of tongues! Each would talk straight on, for an hour, without a comma; but when its influence was over, they fell into weariness and irritability again, only to be revived by another dose. When we witness the same phenomenon among opium eaters, we are sure they are ruining their health. That tea-drinking seriously impairs the health of many women, I know. How exactly alike all strong tea-drinkers are—the same black teeth and dry, yellow skin; the same expression of eye; the same nervousness and periodical headache. The habitual use of this beverage, especially in early life, and with the sedentary habits of our young women,

plays a part in the development of that peculiar cachexia whose termination is phthisis pulmonalis. It is strange that girls who so greatly desire fresh complexions will drink tea. Opium will not more surely produce a dry, yellow, mottled skin. Afraid of the sun, and yet drink tea!

Green tea, in its influence upon the health, is the worst of all our drinks. Black tea is less pernicious, and if used quite weak, and in small quantities, may not be seriously injurious.

Coffee, except in those who have a tendency to congestive headaches, is a better drink than strong green tea, though it is usually drank so strong, that the health is much injured by it.

Prof. Hitchcock declares that the bewitching influence of tea and coffee lies in their narcotic properties. "Their exciting principle is essentially the same as that of spirits and wine."

Dr. Trotter's opinion is, that the only cure for nervous maladies "lies in total abstinence from fermented liquors, tea, coffee, and all other narcotics."

Dr. Bell expressly says that the effect of coffee upon "the bowels and nervous system is most pernicious."

Dr. Combe says that coffee, though it may "increase our comforts for the time, exhausts in the end."

Prof. Sweetzer is of the belief that "the long continued use of coffee is productive of palsies."

Londe, a distinguished French writer, declares that "coffee should be used only in those circumstances in which spirituous liquors are admissible."

Sinibaldi, an Italian medical author, makes the following statement:—"Commerce with Asia has brought us a new drink, (coffee,) which has contributed strikingly to the destruction of our constitutions; producing debility, convulsions, palsy, vertigo, and many other disorders."

Mellingen declares that, "coffee produces fever, anxiety, palpitation, trembling, weak eyes and apoplexy."

Dr. Alcott affirms that, "neither tea or coffee make a particle of blood, or give a particle of strength. The stimulation which accompanies their use, is followed by corresponding depression." He affirms that tea-drinkers often lose their power of self-control, and do and say many things which in cooler hours they deeply regret.

If one *must* use warm drink, either cocoa or chocolate is admissible; and either corn, rye, barley, wheat, or peas, well parched, ground, and infused, makes a very palatable and harmless drink, if not used too hot. For myself, I always prefer hot water, which, with a little good milk, or cream, is a grateful beverage. I do not mean that it equals good Mocha, but neither is Mocha equal to good brandy or wine. I think neither of them equal to a good cigar; but is that a good reason why either of them should be used?

Of all drinks, cold water is the best. Rain-water, or distilled water, is, for drinking purposes, inferior to the water of lakes, rivers, and springs, which contain a per centage of calcareous and other foreign matter. There is a happy adaptation between our organizations and the planet on which we live. Most of the water which nature furnishes us contains foreign compounds, and it has been ascertained that our health is promoted by their presence.

It is quite possible to drink even water to excess. One glass during a meal is generally quite enough. It is for most persons a healthy practice to drink a glass of water upon rising in the morning, and upon going to bed at night.

Alcoholic Drinks. Few indulgences break down the constitution like the excessive use of alco-

holic stimulants. And none so exposes the victims to colds, and other direct and fruitful sources of pulmonary disease. Perhaps no other vice has produced so much mischief in the world, and certainly no other is more useless. It is now well established that alcoholic drinks are not only unnecessary, but positively injurious under all circumstances, whether in extreme cold as in the arctic regions, or in extreme heat, as in the English army in India; whether in dry or damp regions; whether at rest or engaged in exhaustive labor; in sickness or health; in brief, it is always an enemy to health.

Just now, for the fiftieth time, there is an all-potent reason for its use in diseases of the lungs—*it is the fashion*. For the present hour, what is called bourbon whiskey, and various detestable compounds, made of whiskey and bitters, are all the rage in the treatment of pulmonary affections. I am ashamed of the physicians who fall into this silly trap. I declare these whiskey prescriptions not half as decent as the announcements of the newspaper quacks, who begin the puffing of their worthless trash with the words:—"JOY TO THE WORLD. CONSUMPTION CAN BE CURED." Dr. Carpenter's celebrated "Prize Essay," Prof. Yeoman's admirable book, "Alcohol and the Constitution of Man," Dr. Nott's celebrated "Temperance Lectures," and other excellent works may

be read by those who would pursue this subject farther.

TOBACCO.

The charges against tobacco by anti-tobacco reformers have been extravagant. They have declared the use of a single cigar a serious evil. The statement is absurd, and re-acts against their cause.

But it remains true that tobacco is a poison—that its excessive use ruins the general health and stultifies the brain.

If you fill the mouth with smoke, and, holding the hand over the eye, blow the smoke up under the hand, and open the eye, it will smart and weep. Look in the glass and you will find the eye reddened. There has been an irritant poison there. What influence must the same poison produce if taken into the lungs? While their lining membrane is less sensitive than that of the eye, it is quite as delicate. If the poison, which so soon almost blinds your eye, be drawn into the millions of air cells, can it prove an innocent visitor? While I doubt the statement of Dr.

Waterhouse, that the use of cigars is the principal cause of consumption among the young men of the country, I have no doubt that tobacco smoke has developed consumption in thousands.

I have spoken of its direct influence upon the lungs as an irritant poison. But where one is injured in this way, many suffer in the indulgence of this habit that loss of vitality which is the essential fact in the phthisical diathesis. The nervous system becomes irritable, the digestive and assimilative processes are compromised; in brief, the whole constitutional health is more or less affected.

Tobacco is one of the most powerful of the agencies which tend to develope the phthisical taint.

Testimony on the Effects of Tobacco. Dr. Prout, in speaking of this narcotic uses these words: —'Tobacco disorders the assimilating functions, and gives to certain individuals a *cachectic* look. The severe and peculiar dyspeptic symptoms sometimes produced by inveterate snuff-taking are well known; and I have more than once seen such disease terminate fatally with malignant disease of the stomach and liver. The strong and healthy suffer perhaps but little, but the weak fall victims to its poisonous opera-

tion. Surely, if the dictates of reason were allowed to prevail, an article so injurious to the health and so offensive in its modes of enjoyment, would speedily be banished."

Prof. Johnson remarks, "that in America the smoking of tobacco provokes to alcoholic dissipation." He tells us that both the *oil* and the *volatile alkali* of tobacco are poisons as deadly as prussic acid.

Dr. Chapman, of Philadelphia, in an article on "Dyspepsia," uses these words:—"The most common cause of this disease in certain parts of the country, is the enormous use of tobacco."

Rev. Geo. Trask says, "On entering the circulation, it poisons the quality and diminishes the quantity of the blood, and mars the beauty of the race by making multitudes of haggard, trembling, gloomy creatures in the shape of men."

Dr. Moore, who had terrible dyspepsia, and was on the verge of consumption, found all remedies useless as long as he continued his use of tobacco, but recovered immediately upon discontinuing in the indulgence.

DRUGS.

What shall I say of drugs? It is common to denounce them with the doctors who give them. With certain lecturers and writers, the drug-doctors are all "butchers," and their remedies "deadly poisons." I am myself a medical man, and have been long and intimately acquainted with many of the profession. I know well how conscientiously they deny themselves the pleasures of domestic life and society, for the sake of the sick, and for a compensation contemptible in comparison with that of other professions. I cannot speak of my profession in terms other than those of profound respect.

But I take the liberty to say a word to my brethren, trusting that they will pardon so much to the earnestness of my convictions. It is this: Without attempting to discuss the merits of any special remedy, or system of remedies, does not the undeniable fact that at one time we have advocated the superiority of one drug remedy for consumption, a few years later another, and later still another,—with the adoption of each casting aside its predecessor as worthless,—does not this strange, contradictory history of our attempts to treat consumption with drugs, cast a serious doubt over the value of all?

That the free use of drugs has, in multitudes of cases, undermined the constitution, and sown the seeds

of consumption, it seems to me no thoughtful physician can doubt. It is not an uncommon remark among physicians, in speaking of consumption, as of other diseases,—"she has been so much poisoned, or exhausted, by drugs, that I fear nothing can be done for her." Or this,—"the disease is conquered, and he will recover, if he can rally from the effects of the medicine." There is a certain cachectic condition, which the discriminating medical man at once recognizes as the result of drugs. That mercury has produced a vast amount of consumptive disease, it would be easy to prove by numberless authorities.

I have greatly rejoiced, recently, in reading several statements from eminent physicians of the regular school, all going to show a strong tendency among the best of the profession toward the anti-drug, hygienic treatment of pulmonary consumption.

DRESS.

A natural and symmetrical woman has ever been regarded as the most beautiful object on earth.

Artists and poets have given their most exalted inspirations to the portrayal of her matchless charms. But, strange and morbid fancies, dignified with the title of *fashions*, have been busy in destroying what God made perfect.

The most destructive of these fashions is found in a peculiarity of her dress. I refer to the practice of compressing the middle of the body. This strange fashion has come into vogue only quite recently in the history of the world, and even now prevails in only a few of what are known as the more civilized peoples, but is producing an amount of disease and suffering, which no finite mind can measure.

When one undertakes to fathom the reasons, or mystery of this fashion, he is lost. Why intelligent beings should, without regard to convenience or comfort, strive to change the shape and proportions of the most beautiful of all the Creator's works, we cannot understand.

By this practice the lungs and heart are forced up towards the throat; the stomach, liver, and other organs, jammed down far into the abdomen; labored respiration and numberless abdominal maladies are the consequence. But, the votaries of fashion declare, notwithstanding these shocking deformities and sufferings, that they regard a female form in the hour-glass shape as really beautiful. A few years ago this monstrous perversion of taste was well nigh universal. With sincere gratitude, we observe it is now gradually disappearing.

This contraction of the middle of the body, by changing the position of the lungs, heart, liver,

stomach, and every other organ within the body, not only seriously interferes with their functional integrity, but almost invariably produces a distortion of the spine. It is impossible to reduce the size of the waist by pressure, to any considerable extent, and not draw the shoulders forward and downward, producing, of course, a change in the form of the spine. I believe that, among the thousands of wasp-waists that have fallen under my observation, I have not seen ten who did not habitually carry the spine and head in an unnatural attitude. Beside this, the influence upon the organs in the lower part of the abdomen, furnishes the medical profession nearly half its business.

The corset is a cruel invention. It ought at once and forever to be abandoned. Even if it be worn loose, (what lady does not wear hers loose?) its stiffness entirely prevents that undulating motion about the middle of the body, which should accompany respiration. But if it be worn as loosely as it must be to allow entire freedom to the lungs, it would give an unseemly appearance to the dress. In fact, the very structure of a corset renders a close fit indispensable. Every conscientious physician has painful struggles with this fashion.

A fashionable lady has just called upon me with reference to her lungs. I examined her dress. There was the corset, not as close as I have seen, but close enough to make her cure difficult or impossible. I

said at once, "I can do nothing for you while you wear such a dress." "Why, doctor, do you call that tight? Why, that fairly hangs on me." "Yes, madam, I hear that every hour. Have you a husband?" "Yes." "And is he a healthy man?" "Indeed, he is as healthy a man as you would care to see." Do you think, madam, he could wear such a dress as you have on, and continue his business?" "O, no! but then he is not used to it." "Do you think you know a horse, ox, or any other animal, that could wear such a dress about the vital organs, and continue to labor in comfort?" "Well, doctor, that is a funny question. I am sure I can't say, but I suppose no animal could wear such a dress." "You are quite right; neither the strongest man nor the strongest ox could endure such pressure about the vital organs, and not fail. Ladies delicately born and bred, without labor, give way completely, under the cruel pressure." "What shall I do?" "Take off the corset; make the skirt-bands and dress as loose as your husband finds it necessary to wear his dress, and then it will be possible, with exercise and other curative agencies, to restore you."

Women do not comprehend "*tight*" as applied to their dress; they understand it in connection with other forms of pressure, and as applied to the drunkard, but when in connection with their own dress, they are oblivious.

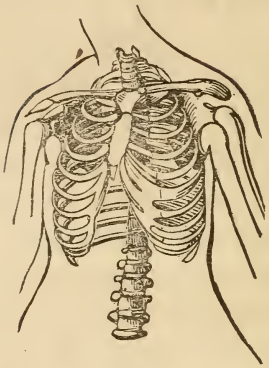


Fig. 1.

Fig. 2.

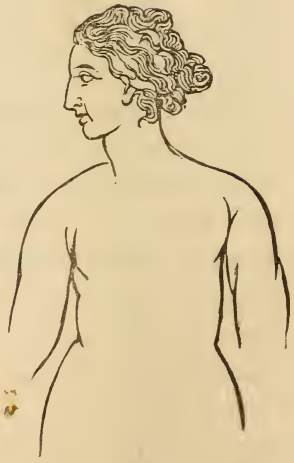


Fig. 3.

Figs. 1, 2, and 3, show the chest as God made it.

Fig. 4.

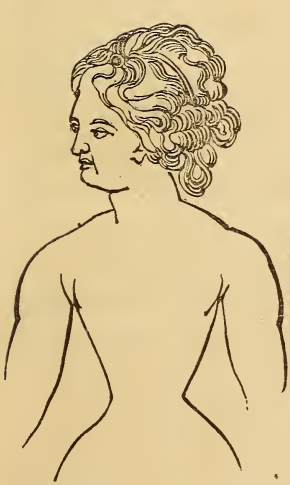


Fig. 5.

Fig. 6.

Figs. 4, 5, and 6, are not in the Divine fashion, but in the Parisian style.

I shall not argue the proposition, that a reduction of the capacity of the most vital part of the body tends to reduce the vitality, and thus lays the foundation for consumption. Of all maladies, pulmonary consumption is most clearly the result of low vitality. Whatever breaks down the tone, may, in this climate, lead to consumption. No habit in which women indulge, tends more directly and irresistibly to cripple the vital forces, than compressing with a hard, inflexible corset, those organs which eliminate the vital forces.

Opinions of Distinguished Persons on Tight Lacing. Lewes says, "In England, women have pretty generally learned to see the danger, if not always the hideousness, of these wasp-waists, once so highly prized."

Herbst experimented upon some Russian soldiers who laced with a belt. He found they could inspire one hundred and ninety cubic inches without the belt, and but one hundred and thirty when laced.

Dr. Mussey remarks that, "Whatever contrivance is so applied to the chest as to shut out from the lungs a part of the air they are capable of receiving, causes degeneration of the blood, increases the liability to

disease, and becomes the ground-work of premature decay and death."

Dr. Griscom declares that it is "a source of consolation to those interested in the progress of civilization to know that '*hour-glass waists*' are fast giving place to true taste, and will shortly, instead of captivating the eye, be looked upon with pity and disgust."

Dr. Rush says, "many facts might be mentioned to show the influence of tight stays, ligatures, garters, waistbands, and collars, in producing diseases, especially of the lungs, or interfering with their cure."

Another physician of eminence says, "female dress errs in the tightness with which it is made to fit the body, producing disease of the organs of the chest and abdomen, and preventing free and graceful movements, and that oxygenation of the blood so necessary to health, good looks, and long life."

Dr. Hunt makes the following remark:—"Every body that *thinks*, knows the lungs do not need squeezing, and that it is not sensible for man or woman to wear tight clothing."

Dr. Clarke says, "Since the free expansion of the

chest, or in other words, the unimpeded action of the respiratory organs, is essential to health, the employment of tight stays and those forms of dress which interfere with these natural actions must be injurious, and cannot therefore be too strongly censured."

The celebrated Dr. James Johnson says, "The growth of the whole body and the freedom of all its functions, so much depend upon perfect digestion, that every impediment to that digestion, such as compression of the middle of the body, must inevitably derange the whole constitution. Although the evils of tight-lacing are as patent as the sun at noon-day, I have not known its commission to be acknowledged by any fair dame. It is considered essential to a fine figure, yet I never could discover any marks of stays in the statues of the Medicean Venus, or the Apollo. And I venture to aver that the Cyprian goddess was not in the habit of drawing her zone as tight as the modern fair ones, else the sculptor would have recorded the cincture in marble. The comfort and motions of the foot are not more abridged and cramped by the Chinese shoe, than are respiration and digestion by the stay." Thus wrote the physician to the father of the present queen of England.

A former professor of the theory and practice of

medicine in the university of Vermont says, "Undue confinement of the chest must at all periods of life be prejudicial, hence the practice of tight-lacing, we almost always find classed among the causes of phthisis, as well as of numerous other ills." And he adds, "It is surely an erroneous notion that women need the support of stays."

Dr. Ticknor expresses himself on this subject as follows:—"We might, with the same propriety that we now deform our bodies, follow the practices of savage and heathen nations—we might slit our lips, prevent the growth of our feet, pluck out our hair, or flatten our heads; which could all be done with infinitely less detriment to health than results from our own cruel custom of tight lacing."

Bare Arms and Legs. The practice of exposing the arms and legs bare, or nearly so, is very injurious to the lungs. The blood not being able to make its way into the extremities, accumulates in the chest. Let me give you an illustration. One morning, not long since, I was asked to visit a young lady residing in this city, who was suffering from a malady in the chest. After an examination of her lungs, the father said: "Now, sir, if you are not in haste, I wish you would remain a moment, and answer a few questions.

We have had five children—three daughters and two sons. Two daughters are dead of consumption; the third and last one, you inform me, has tendency to the same disease, while my sons are perfect illustrations of health and manly vigor. Born of the same parents, fed at the same table, enjoying the same comforts in every way, what is the reason for this difference?"

I replied: "Birth and food are not the only conditions of health. In many particulars your girls have been greatly wronged. They have been practicing '*propriety*,' while the boys have been engaged in active, invigorating sports. Your sons have been at 'cricket' on the Common, while your daughters have looked at them through your front windows, conducting themselves, meanwhile, with the utmost '*propriety*.' The girls have had no boisterous games in which the lungs and muscles could be brought into vigorous play; but chained by a vigilant sense of '*propriety*,' they have quietly and languidly dragged themselves along. The boys, unchained, have given full vent to their instincts. But, aside from this, there is difference enough in their dress to account for the difference in their fate. While the boys have dressed their arms and legs with flannel sleeves and drawers, the girls have almost nothing about their limbs. To illustrate this point, let us examine the dress of your daughter's extremi-

ties. You see that, although an invalid, and therefore needing warm dress, she has nothing on her arms but a single thickness of silk, and that in the shape of a flowing sleeve. This gauze undersleeve is not to be spoken of as dress. Her legs have nothing but a single thickness of cotton drawers, surrounded by these indefinite skirts. Now, sir, I venture that you and your sons have on the arms a substantial flannel shirt-sleeve, with a thick woollen coat-sleeve, the *lining* of which is thicker and warmer than the entire dress of your daughter's arm. And you have on the legs warm woollen drawers and thick, warm pants.

"Your daughter has a pair of kid slippers, with silk stockings, while you and your sons have calfskin boots with woollen socks."

"Oh, no!" exclaimed the daughter, pushing out a foot; "I wear these strong boots; mother is very particular about that."

I said to the father,—"Observe those boots; your daughter and her mother think them prodigious! Now, sir, could you or your sons keep your health and wear prunella gaiters?"

"But what should she wear on her feet?"

"She should dress them as warmly, to say the least, as you dress yours. Feel of her arms! Now feel of her legs! Do you think, with such a circulation as that, the lungs can rid themselves of conges-

tion? The blood is crowded into the lungs, because it cannot make its way out into these naked, cold limbs; the tubercles are thus swollen and inflamed. Until these limbs are warm, the lungs cannot be relieved of their load.

"While, in the case of an invalid, much may be done by friction and exercise, the principal reliance must be upon clothing."

"What shall be done?" at length asked the mother.

"The arms and legs must be covered with knit, closely-fitting, woollen garments. If one thickness will not keep them warm, she must have two. Her arms and legs *must be kept warm*. And as soon as a good circulation is established in them, you will observe a change in her respiration and pulse."

What was true of the young lady of whom I have spoken, is true of nearly all females in this country. Look at the fashionable lady as she promenades Washington street, in December. Her chest is covered with several thicknesses of cloth, including, perhaps, thick pads of hair; then a thick shawl, which, with its various doublings, and the folding-over in front, often gives from eight to twelve thicknesses of shawl; then over that, a set of immense padded furs; while the legs have a single thickness of cotton covering, and go paddling about in the midst of a skeleton balloon.

I have asked my wife to prepare a chapter on dress, in which I observe a repetition of one or two points already made by myself; but as the subject is one requiring "line upon line, and precept upon precept," I have concluded not to abreviate her contribution.

Mrs. Lewis has in contemplation a little work on the subject of female dress, to be published a few years hence, in which she proposes to treat the physiological aspects of the subject very fully.

The subjoined is from her pen:—

"A *healthy* dress allows the blood to circulate freely through every part of the body, and keeps every part nearly at the same temperature. The *fashionable* style of dress does not secure free circulation; hence cold hands and feet, and a general loss of vitality.

"The *present style* of dress compresses the lungs till they are scarcely more than one-half their natural size, and have less than half their natural action. Of course, they cannot absorb sufficient oxygen to keep the body warm. This, with the almost complete nudity of the arms and legs, produces a feeble and irregular circulation. These errors are so common that you may ask the fashionably dressed women of the country, if they have warm feet, and nine out of ten will reply, "Oh, they are never warm, except when by the fire." As a result of these cold extremities, the blood is

driven to the head and chest, causing frequent head ache and palpitation of the heart.

"A headache is so common among our fashionable women, that it is considered vulgar to be always and entirely free from it. Women, a few generations back, had no such fashion.

"The present style of dress exposes the arms naked, or nearly so, at all seasons of the year.

"A lady imagines, when she starts out to walk, with the thermometer down to zero, that her arms are sufficiently protected if she only has on the fashionable flowing sleeves, with fur cuffs upon the wrists. When obliged to raise the hands, you see the naked arm. In this condition, the blood in the arm becomes nearly as cold as the skin, and this current of blood runs back to the chest to chill the vital organs.

"Would our fathers, husbands and brothers be comfortable with their arms thus exposed, in such a temperature? And are delicate women, who live mostly in the house, better able to bear this exposure than strong men?

"Over those arms should be worn one or two thicknesses of flannel; at least, they should be clothed quite as warmly as the body. These extremities, so far from the chest, are more easily chilled than the body, and therefore require at least as much clothing to keep them of the same temperature.

"It is often said that the arms can become accustomed to such exposure as well as the face. But we learn from anatomy, that the face is supplied with an extra circulation, to protect it against its inevitable exposures.

"Many who by excessive dress upon the chest, make their lungs very sensitive, do not scruple to remove the dress entirely from the upper half of the chest and the arms, on a cold night, go to a cold ball-room, and dance all night, and when morning comes, wonder how they took a cold. When, finally, they are placed in the grave by consumption, developed by such imprudence, we solemly talk about God's mysterious providence.

"Not only is the dress of the neck and arms of a fashionable woman entirely wrong, but the legs and feet suffer from the same error.

"As the cold fall weather comes on, every American woman imagines, in order to keep herself comfortable, she must increase the number and thickness of her skirts, while these skirts are worn, in great part, over her hoop. In this way she is completely dragged down by the heavy skirts, which do almost nothing to keep her legs warm.

"The only way to keep the extremities warm, is to wear upon them two or three thicknesses of woollen knit garments, snugly fitting them. These woollen suits should be so supported as not to drag upon the

body in the least, and should come down to the ankles under the stockings.

"With thick woollen stockings and good boots, made of strong leather or thick cloth, with triple soles, and all lined with cotton flannel, these extremities can be kept warm, and the woman be able to go out freely at all seasons of the year, in any weather, without rubbers, which I may add, should never be worn. Of course the cloth uppers cannot be worn in wet weather.

"The thin prunella gaiter, with its paper sole, should not be worn, either in the street, or in the house, after the changeable weather of autumn comes on. The usual habit of wearing, in cold weather, slippers in a carpeted parlor even, should never be practiced by those who are feeble, or even by those who are well, and wish to keep so. The floor is the coldest part of a room, and the feet require thick, warm covering.

"A *healthy dress* permits every organ in the body to perform its functions untrammelled. The *fashionable* style does not allow this free action of the vital parts, and hence the present feeble, crippled condition of the women of America. This evil, together with other physiological errors, is doing much to shorten the lives of our women, and compromise the health and *life* of the whole American race.

"To avert these sad results, and to improve the health of our women, it is proposed that the following style

of dress be adopted. Such a dress has been worn by the writer nearly twelve years, and she is happy to say, it has saved her from a consumptive's grave, to which she was slowly but surely tending.

"The waist should be several inches larger than the woman's body; a little shorter than the present fashion, and full in front, that the chest may enjoy the freest action. The bands of the skirts should be much larger than the body; the buttons to be placed on the band of the inside skirt, just as they are on a gentleman's pants for suspenders, and the same elastic suspenders worn, crossing behind. Make button holes in the bands of the other skirts, to correspond with the buttons on the inside skirt, and button on; thus one pair of suspenders will carry three or more skirts. This style of dress is attended by no discomfort to the wearer, and allows full action to every organ of the body. Of course, *corsets* should NEVER be worn. And with the skirts supported as above described, there is no apology for wearing them. The dress I have described may be made so pretty that it will be much admired.

"Whalebones have no business in a woman's dress. They spoil all that beauty of outline which Powers and other great artists have found in the natural woman. They interfere not less with that peculiar undulating action of the chest and abdomen which results from the

normal action of the thoracic and abdominal viscera. And if the waist be short and loose as advised above, there will be no need of whalebones to keep it down.

"God knew what He was doing when He made the human body, and made it just right in every way; we cannot alter its shape without destroying its beautiful symmetry, and causing disease and premature death."

Dress of Children.—As bearing upon pulmonary consumption, there are certain errors in the dress of children which must be noticed. I believe I echo the voice of my profession when I declare that the seeds of consumption are planted in thousands, by mistakes in dress during infancy and childhood. To correct these, permit me a few practical suggestions:—

The skirt-bands must be left very loose. If you would give a baby's lungs and heart the best chance for development, the dress about the chest and waist should be so loose that if the child be held up by the shoulders, its entire dress, except as sustained by the shoulders, will fall to the floor. With such a dress the blood is so much better oxygenated, that, other things being equal, the babe will part with the characteristic, dark-red color of its skin much sooner than with a close dress.

The bones surrounding the small, feeble lungs, now for the first time beginning to move, are so soft and

pliable that, under the slightest pressure, they will yield, and the capacity of the lungs be reduced. I have seen the nurse use the entire strength of her fingers in the first application of the skirt-bands. No thoughtful person, acquainted with the anatomy of the thorax in a new-born babe, can escape the conclusion that its vitality is seriously compromised by this pressure upon the principal organs of that vitality. In many instances I have seen the character of the little one's respiration and pulse decidedly affected by enlarging the skirt-bands.

Mothers, if you think all this pressure necessary to give your babes a form, as I have heard some of you say, you forget that the Creator of your child has all wisdom and skill, and that any changes in the baby's form and proportions, must prove only mischievous. And perhaps you may not feel your pride hurt by the suggestion, that His taste is quite equal to yours. That a corset, or other machine, is needed to give a human being a form, as is so often suggested, is an imputation on the Creator, which no thoughtful and conscientious person can indulge.

Dress of Children's Arms.—Prominent among the errors in the dress of children, is the custom of leaving their arms nude.

I speak of the dress for the damp and cold seasons.

It should be added that, during the cool summer evenings, too much care cannot be exercised in protecting the baby's arms and shoulders. If the mother desires to exhibit her darling's beautiful skin, let her cut out a bit of the dress near its heart, and when the neighbors come in, let her show the skin thus exposed to the company. This is so near the centre of the body that it has no chance to get cold; but in the case of the arms and legs, we have parts far removed from the central organs, and such parts require special protection.

Take the glass part of the themometer out of the tin frame, and put the bulb in your baby's mouth. The mercury rises to 98 degrees. Now, on a cool evening, place the same bulb in its little hand (I am supposing it has naked arms); the mercury will sink to 60 degrees or less. Need I say, that all the blood which has to make its way through the diminutive and tortuous vessels of those cold arms, must become nearly as cold as the arms and hands themselves? And need I add, that as the cold currents of blood come from both arms back into the vital organs, they play the mischief there?

If you would preserve your child from croup, pneumonia, and a score of other grave affections, you should keep its arms warm. Thick woollen sleeves,

which fit the little dimpled arms down to the hands, at least, constitute the true covering.

A distinguished physician of Paris declared, just before his death,—"I believe that, during the twenty-six years I have practised my profession in this city, twenty thousand children have been born to the cemeteries, a sacrifice to the absurd custom of naked arms."

When in Harvard, many years ago, I heard the eminent Dr. Warren say, "Boston sacrifices hundreds of babes every year by not clothing their arms."

How Young Ladies can make their Arms Grow. A young lady asked me, what she could do for her very thin arms. She says, she is ashamed of them. I felt of them through the thin lace covering and found them freezing cold. I asked her what she supposed made muscles grow. "Exercise," she replied. "Certainly, but exercise makes them grow only by giving them more blood. Six months of vigorous exercise will do less to give those cold, naked arms circulation, than would a single month, were they warmly clad."

The value of exercise depends upon the temperature of the muscles. A cold gymnasium is unprofitable. Its temperature should be between sixty and seventy, or the limbs should be warmly clothed. I know our servant girls and blacksmiths, by constant

and vigorous exercise, acquire large, fine arms in spite of their nakedness; and if our young ladies will labor as hard from morning till night as do these useful classes, they may have as fine arms; but, even then, it is doubtful if they would get rid of their congestions in the head, lungs, and stomach without more dress upon the arms and legs.

Dependence of Health upon Circulation. Perfect health depends upon perfect circulation. Every living thing that has the latter has the former. Put your hand under your dress upon your body. Now place it upon your arm. If you find the body over 90 degrees and your arm under 60 degrees, you have lost the equilibrium. The head has too much blood, producing headache; or the chest too much, producing cough, rapid breathing, pain in the side, or palpitation of the heart; or the stomach too much, producing indigestion. Any or all of these difficulties are temporarily relieved by immersion of the hands or feet in hot water, and permanently relieved by such dress and exercise of the extremities as will make the derivation permanent.

Length of the Skirt. The most earnest efforts looking towards dress-reform have had reference to the length of the skirt. I think it is one of woman's

first duties to make herself beautiful. The long skirt, the trail even, is in fine taste. Among the dress-features of the stage none is so beautiful. The artist is ever delighted to introduce it in his pictures of woman. For the drawing-room, it is superb. When we meet on dress occasions, I cannot see why we may not introduce this exquisite feature. If it is said that expense and inconvenience are involved, I reply, so they are in painting and statuary.

For church and afternoon-sittings, skirts that nearly touch the floor seem to me in good taste; but for the street, when snowy or muddy, for the active duties of house-keeping, for the gymnasium, and for mountain-trips, it need not be argued, with those whose brains are not befogged by fashion, that the skirts should fall to about the knee.

Best Material for Dress. In all seasons of the year, and in all climates, the best material for dress, for old and young, for strong and weak, is woollen. It is the poorest conductor of heat, and therefore secures the most equable temperature. This is the principal object of dress. The superiority of woollen clothing for babes is even greater in July than in January. In the warmest days a single thickness of soft flannel will suffice. But if linen or cotton be worn, the garment is soon moistened by perspiration,

and two or three additional thicknesses are needed to protect the child against the ill-effects of a draught.

In warm weather we find it necessary to wear woollen garments in the gymnasium, as a protection against a chill from draughts while perspiring. Our soldiers in the South find flannel their best friend, securing them against the extremes and exposures of their camp and field life. Blacksmiths, glass-blowers, furnace-men, and others exposed to the highest temperatures, find woollen indispensable.

Few practices will do so much to secure the comfort and protect the health of young children as dressing them in flannel night and day, the year round. It may be objected that flannel irritates a delicate skin. This is often so, as the skin is now treated. But there is no baby's skin so thin and delicate that daily bathing and faithful friction may not remove this extreme susceptibility. And as the skin is the organ upon which the outer world makes its impressions, nothing is more important than that all morbid susceptibility should be removed.

An additional advantage in the use of flannel is, that it serves by its mechanical effect to keep up a healthy surface circulation, which is one of the vital conditions of health. The skin and the lungs act and re-act upon each other more directly, if possible, than

any other two organs of the body. Children born with a predisposition to consumption especially need a vigorous treatment of the skin.

Prof. Dunglison says, "The best clothing to protect us from external heat or cold is one that is a bad conductor of caloric, or one that does not permit heat to pass readily through it. This is the case with woollen. The Spaniard and the Oriental throw woollen mantles over them when they expose themselves to the sun."

Londe asserts that "the use of woollen next the skin, is one of the most precious means possessed by therapeutics. Its use on children does much to prevent bowel-affections, and with it we can bear with impunity the vicissitudes of weather."

Brocchi ascribes the immunity of sheep which feed night and day in the Campagna di Roma "to the protection afforded them by their wool."

Patissier affirms that woollen clothing has been found effectual in preserving the health of laborers working in marshy grounds, canals, and drains.

Captain Murray, of the English service, after two years spent among the icebergs on the coast of Labra-

dor, sailed, immediately upon his return to England, for the West Indies, where he remained some months, and while other officers lost many men, he returned to England without the loss of a man, which he ascribed in considerable part to the use of flannel. So important did he regard this hygienic measure, that he had every man examined daily, to ascertain that he had not thrown off his flannels.

A distinguished author writes that the aged, infirm, rheumatic, and those liable to pulmonary disease, are greatly benefited by the use of flannel.

Dr. Willich says, "Wool recommends itself to us, because it is the covering of those animals most resembling man in structure."

Count Rumford says he is convinced of the utility of flannel in all seasons; that he was relieved by its use from a pain in the breast, to which he was much subject, and had never since known an hour's illness.

The celebrated Hufeland says it is a desirable dress for the nervous, those subject to colds, catarrhs, influenzas, and, in fact, for all invalids.

Another writer says that desperate diseases would be prevented, and many valuable lives saved, by its more universal use.

A distinguished American physician says that flannel next the skin is of service to the consumptive by the irritation it produces, as well as the defence it affords against the cold.

Dress of Males. I have little to say upon male dress beside what has been said under the heading,—"*Best Material for Dress.*" Men make comparatively few mistakes in this department.

A few *fops* compress the chest with the waistcoat, but these foolish fellows are hardly worth considering. A few men wear their pantaloons without suspenders, which is always injurious; the pressure produces absorption of the muscles, tends to push the abdominal contents down into the lower part of the abdominal cavity, and checks the return of the blood through the surface veins.

Many gentlemen err in the dress of their feet; but this is discussed under the heading,—"*Our Shoes.*"

A great many wear hats, or caps, too close and warm; baldness is the consequence. We never see a man who has lost a hair below where the hat touches his head, not if he has been bald fifty years. If the

hair is lost, and the top of the head shining, nothing can be done to restore the hair; but if the hair is falling out, the best restorative means is a frequent bath in cold water, with sharp friction, and the use of a cool, ventilated hat.

Wrapping the neck and upper part of the chest with furs, or a comforter, is a bad habit, often resulting in a cold, which attacks the parts thus unduly heated. And if colds are not caught in this way, the neck must suffer, more or less, by the alternation from heat to cold. I have traced more than one severe cold, which has roused into fatal action a tuberculous lung, to the use of furs. An immense number of them are worn.

Cravats should be slight and loose, not heating the neck, nor interfering with the action of the muscles, or the circulation of the blood.

In regard to the coat and pants, I will simply say, that they should always be what the present fashion is, —loose, not interfering, in the least, with the arms or legs.

I have written a great deal more on dress than I intended, but the subject is one of such vital importance, and so intimately connected with the health of the lungs, that I could not say less.

Fully conscious of many defects in my discussion of the subject, I take the liberty, in conclusion, to ex-

press the hope, that even my poor words may arouse the earnest and serious attention of some portion of my fair countrywomen.

OUR SHOES.

Perhaps no other dress topic has elicited so much discussion. The greatest variety of opinion is entertained, both with reference to the material and the shape. As the health of the feet has much to do with the health of the lungs, I submit a suggestion or two.

First, the sole should be broad and strong, and the heels broad and long. The *width* of the sole is most important. Nothing can be more absurd and cruel than the present narrow soles. The average women's foot, when placed, nude, upon the floor, with the weight of the body resting upon it, is an inch and a half broader than the average sole of her shoe. How senseless, to hobble about through life with the feet thus squeezed into half their natural width. How the bones and ligaments are distorted! Most people are ashamed of their naked feet. I do not wonder. With the toes flattened and pressed into each other's sides; with the large toe pushed far to one side, the joint at its base projecting in a most unseemly way, we

have a painful departure from the beautiful foot of the young child. The broad-toed boots and shoes are physiological.

I will tell you how I manage to induce the shoemaker to depart from his rule, and make the sole as broad as my foot. Laying a sheet of paper on the floor, and resting my whole weight upon it, on one foot, he traces a pencil mark about the foot. Then I say to him, "That is to be the width of the sole." I say, "If you make the soles of my shoes narrower than that, I will not take them." I have no difficulty in obtaining just what I want. Many who are crippling themselves with narrow soles, assure me that they have given the most explicit injunctions to the shoemaker to make the soles broad, but he will not do it. Adopt the expedient I have designated, and you will have no further trouble.

It is said, if the shoe is loose, corns will disappear. This is a mistake. The upper may be ever so large, if the sole is narrow, the corns will remain. What is needed, is a sole so wide, that no part of the foot shall project over the sides of the sole. If the sole be as broad as the foot can spread, nothing of the kind will occur.

If you support your weight upon one foot, placed upon a narrow sole, from which the upper has been cut away, you will observe the sides of your foot at the

little toe, and the large joint at the base of the great toe will project over the sole, and if the sole be a thin one, the sides of the foot will reach the floor. Now suppose the upper to be in position. Is it not obvious that the sides of the foot will press against the upper, and more, that there must be friction between the foot and the leather. In this way, the greater number of the corns on the little toe, and the joint of the large toe are produced.

I do not say that the upper should be tight—for I think it should be loose—but even if it is tight when the boots are new, little mischief will come of it, if the soles are sufficiently broad. *The great essential of a comfortable shoe is a broad sole!*

Both taste and comfort demand a reform in this particular. Such a change would afford a greater relief than all the other improvements which have been proposed.

Fig. 1.

In *Fig.* 1, the entire bottom of the foot rests upon the sole, which is as broad as the foot when the weight of the body rests upon it.

Fig. 2.

In *Fig.* 2, the sole is of the fashionable width, and at every step, the little toe and the side of the foot just back of it press down over the side of the sole; thus the foot becomes a quarter of an inch broader than if the sole were as broad as in *Fig.* 1; the little toe rubs hard against the upper leather—pain and a corn are the results. I had a painful corn on each little toe. Broad soles cured them.

The shoe ought to be much straighter than the present fashion. If you would know how much, mark the shape of your foot, standing on the paper, and compare the mark with the sole of the fashionable

shoe. You will be surprised, as I have been, that anywhere, outside of China, a shoemaker should suppose such a shaped shoe adapted to the human foot.

Much has been said upon the shape of the upper surface of the sole. One party contends that it should be flat; that the Creator intended the human foot for flat surfaces; that it was designed the weight should rest upon the heel, and the two prominent points of the ball. The other party contends, that the surface of the sole should be a counterpart of the bottom of the foot, fitting it like moist clay. A shoe with this feature has recently been patented. I have tried two pairs on the patent last. My wife, and several friends, have tried the same. We are more than satisfied—we are delighted. While I cannot, perhaps, answer the argument of those who claim that the foot is designed for flat surfaces, though the surface of the earth is not like a house floor, a very grateful experience leads me to favor a sole which is not flat. Being a heavy man, and walking with rapidity, my feet did, at one time, give me—during the hot season—much trouble. With the patent sole, I can walk in new boots all day, without suffering.

Another point, much discussed, is this:—Shall the ankle be closely fitted? Many ladies claim, such a binding gives them support. I need scarcely argue that a ligature about the blood vessels, muscles, and

tendons of this important part, must produce weakness. The congress boot, with its rubber elastic, is mischievous. At all seasons of the year, when the condition of the streets will allow it, shoes which do not come up about the ankle are to be preferred; permitting, as they do, the freest play of the parts. During the wet, muddy, and snowy season of the year, I prefer, for many reasons, long-legged boots. If rightly made, they do not press the ankle.

What material shall be used for the uppers of shoes? For the warm season, there is no doubt about the great superiority of cloth, particularly for the city. Its porousness permits an evaporation, which cools the feet; but, during the cold and wet season, it will not suffice. For the latter period, I think, for both sexes, calf or kip-skin is the best. The upper leather should be covered often with a little oil blacking. Rubbers should be thrown overboard. I do not mean to say that they are not an improvement upon the Morocco shoes which ladies might otherwise wear; but I do say that the rubber boot or shoe retains the perspiration, and produces a tenderness of the foot, which greatly exposes the wearer to colds. For myself, I could go, day after day, with wet feet, during the cooler seasons, and speak every night, two hours, in a large hall, without hoarseness; but if I wear rubbers

for a week, my throat is likely to become a little tender.

The physiological principles I have presented, bearing on the shape of the shoe, have been practically recognized by the English, to a greater extent than by any other people. The French seem to have studied how to violate the anatomy of the foot. In America, we have, unhappily, copied the French. When we consider the importance of walking, in the business of life, and as a means of health, and of the influence of the circulation of the feet upon the circulation and health of other parts of the body; and when we consider the dependence of the feet upon the size and shape of the shoes, both for easy walking and good circulation, it will not be thought that I have given undue importance to the subject of shoes.

So long as women walk on the same earth and sit in the same rooms with men, they must wear stockings and boots as thick and warm.

Shoes for Children. Recently, I met a mechanic, who resides in our street, walking out on Sunday morning, with his little two-year old daughter. The father, I have often admired for his immense and vigorous physique. He had on a pair of boots with soles nearly an inch thick. The little thing at his side wore a pair of red slippers, with soles not thicker

than pasteboard. "Why do you wear those immense boots?" I asked. "To keep my throat and lungs all right," he replied. "Is your little girl well?" "She is rather poorly. The doctor says we must take her out in the fresh air." "Do you think *you* could come out this morning, on this cold, damp walk with slippers?" I asked. "No, sir; it would give me my death." "How do you think your little delicate daughter can escape with those thin morocco slippers?" "Well, it does seem curious; but I don't know much about such things. You'll have to ask the old woman."

The usual dress of children's feet, during the cold season, is a shameful violation of physiological law.

But in the summer they should be allowed to run in the garden without shoes, and play, with their little feet in loving contact with the bosom of mother earth.

Temperature of the Feet Again. This subject is so important that I desire to consider it in another aspect.

Congestion of the head, throat, or any of the organs of the chest and abdomen, is relieved by a good circulation in the feet and legs. Being far from the vital apparatus, and thus liable to become cold, they are, in addition, kept in the coldest part of the room. During the cold season the air at the floor is

from 15 to 20 degrees colder than that at the ceiling. The anxious mother shows her familiarity with this fact when she says,—"Children, you must not lie on the floor; you will catch cold."

Notwithstanding this marked difference, the feet have less clothing than the body. Our chests would suffer in a cold day if they had but a single thickness of cotton and one of morocco. Warmth of the lower extremities is indispensable to health of the head and chest. Cold bathing, friction, stamping, and other exercises, with proper clothing, will generally secure the needed temperature in these parts. But in many, whose vitality is low, and whose occupation compels long sitting, the feet, even with the measures suggested, will become cold. To such, I advise the use of artificial means. A jug filled with warm water, and placed under a stool which is stuffed and carpeted, will diffuse a gentle heat about the feet, and secure a temperature equal to that about the head. It may be said that such measures will produce susceptibility to cold. A hot water foot-bath, and other extreme measures, will produce such susceptibility, but the gentle warmth radiated from the jug, so far from creating such morbid susceptibility, will, by establishing an habitual circulation in the feet, act as a preventive of colds. A tin reservoir, which half a dollar will purchase, may be fitted between the legs of a stool,

and prove more convenient than the jug. One of my neighbors has patented such a stool, but any tinman, can make, at small expense, something which will answer very well.

The practice of compelling school children to exchange their boots for slippers, during school hours, is bad. While the silence thus secured is an advantage, if the school-room be ventilated as a school-room should be, the feet of the pupils must become cold. A strong carpet shoe with a thick felt sole, and coming well up at the ankle, would prove highly satisfactory. For such a shoe the pupil may well exchange his heavy boots during school hours, particularly if the latter be kept in a warm and dry place.

BATHING.

God has given our race few greater benefactors than Priessnitz. He has cured the world of Hydrophobia. Others had practiced cold bathing, but in a most important sense, he is the discoverer, who has the genius to successfully proclaim his knowledge to the world.

Since Priessnitz's advent, millions have found in the cold bath protection against those external influences,

which are the cause of so much disease. No tonic, not even quinine or iron, equals water. The skin suffers by seclusion from air and light. The heat, moisture, and darkness, resulting from dress, produce in the skin a pale and delicate condition. In our climate, this morbid condition can be removed by nothing so successfully as by cold bathing and friction. The skin is the organ which we present to the external world. Whatever invigorates it, whatever tends to make it tough and resistant, protects us from a multitude of mischievous influences.

In discussing the treatment of diseases of the lungs, these facts possess great importance. The skin and lungs act and re-act upon each other in a remarkable manner. Whatever impresses one, either mischievously or happily, is immediately felt by the other. In the treatment of consumption, the wise physician gives the most assiduous attention to the conditions of the skin, endeavoring to secure in it a vigorous circulation.

The importance of securing a healthy skin in treating diseases of the lungs, is seen, in the light of the physiological fact, that it and the lungs are the principal excretory organs of the body. A very large proportion of the worn-out matter in the system is eliminated by these organs. If the lungs are so constructed, that they can, without injury, work off a

certain quantity of effete matter, and, for want of an open skin, they are compelled to excrete an increased amount, they must suffer. When many of the pores of the skin become closed, and the effete matter cannot find its exit in that way, it must in considerable part, escape through the lungs. The effect upon these organs I need not discuss.

In the history of cold bathing there have occurred many re-actions. These are inevitable.

Some physicians caution the public against applying water to the body, lest the skin-oil be removed. They have had no experience. We may bathe half-a-dozen times a day, without depriving the skin of this oil. Its frequent removal induces an increased secretion.

The public is told that cold bathing depresses the vitality and produces internal congestions. If, in the midst of winter, in a cold room, a feeble person take a bath in freezing water, and stand exposed five minutes, the desired re-action will come on slowly, and thus the bath may prove injurious; but, no matter how low the vitality, though the patient be within a month of the grave by consumption, if he have such facilities as will enable him to apply the water to his entire body in ten seconds,—and nothing is easier,—and he rub the skin dry and red in sixty seconds, there will be no internal congestions, but an immediate and grateful re-action.

Those who have not practiced cold bathing, or studied its philosophy, say, "a cold bath may be good for strong and fat people, but is bad for thin, delicate ones." Hardy, fleshy people can go without bathing, and not suffer serious consequences; it is the delicate, sensitive ones who so greatly need the protection afforded by the cold bath.

It is often said, that "a cold bath is good in the summer, but not in winter." During the summer, when we wear but little clothing, and the air finds its way to the skin, and we perspire freely, we might possibly dispense with the bath; but, during the winter, when the skin is secluded from air by much dress, and we perspire but little, when the air is cold and damp, and we are liable to take cold, then we most need the invigorating influence of the cold bath.

The public is told to use tepid or warm water. While warm water and soap will cleanse the skin more effectually than cold water, it generally fails to produce the same tonic effect, and is more apt to leave a susceptibility to colds. During the warm season, the warm bath is often an excellent means of relieving the body from a sense of heat—on the same principle that cold bathing relieves the body of chilliness.

There is one kind of warm bath now coming into use, not open to the objection of creating an undue susceptibility to colds during cold weather. I refer to

the hot-air bath in which no water is used until the last moment. I take one of these baths frequently, and will describe it:—You enter, *nude*, a well ventilated room, with a temperature from 130 to 150 degrees. Sitting or reclining, for twenty or thirty minutes, and drinking freely of cold water, a profuse perspiration is established; when you pass into another room, with a temperature of about 200 degrees, (for myself I have it 250 degrees,) where you remain fifteen or twenty minutes. Here, the perspiration becomes immense, dripping from every point. The air is so filled with humidity that you feel no sense of suffocation or stricture. Stepping from this to the spray bath, cold water is forced upon you from a powerful force-pump, in minute jets, producing a sensation as if innumerable needles were penetrating the skin, when you are gently wiped. In certain conditions this bath is invaluable. The high temperature produces a surface circulation, which shields against cold and damp. A dry atmosphere, at 250 degrees, produces a very different effect upon the skin from water, as high as it can be borne, which is but little above 100 degrees. This hot air bath—often improperly called the Turkish bath—will come into very general use, and contribute something to the cure of diseases of the lungs.

THE HAND BATH. The hand-bath is, as a general and preventive measure, the most available form of cold bathing. Procure a bathing mat, made for this purpose, or make one, by sewing a rope into the edge of a piece of rubber-cloth, which is four or five feet in diameter. Spread this on the floor close by your wash-bowl, which should contain three or four quarts of water. Standing in the centre of the mat, with an old towel folded about eight or ten inches square, or with a large sponge, (the towel is better,) apply the cold water to the chest, back, and limbs, with great rapidity. Now, with several rough towels, which, if convenient, should have been hung by the fire during the night, wipe the body quickly, and with that vigor and earnestness which men display in boxing. The feet should receive hard friction, and, for a single moment, standing with the balls upon a seam in the carpet, turn the feet from side to side in a vigorous manner. Nothing will warm them quicker, and the heat thus generated will continue for some time.

As a remedial means, in many general and local maladies, water, cold and warm, is most happily employed. Among the many modes of its application, I have used the hip and foot baths with great satisfaction; but I think the hand-bath, already discussed, is all that should be presented in a book of this character. I may add, that, in the treatment of some chest

affections, I have employed a hydropathic jacket, with excellent results.

In conclusion, I will introduce the remarks of the eminent Dr. J. C. Warren, on this subject. My first impressions on the subject of cold bathing, were received from Dr. Warren, while I was a pupil in the Medical Department of Harvard. The excellent old man placed his hand on his own cheek, and said,— "You see in this skin the effects of a daily bath; at an age when the face is usually wrinkled and rough, you see my skin is like that of a child's."

"The application of cold water to the human body is beneficial principally in two ways; first, as a purifier; second, as a tonic. 1st, it purifies the body by removing from its surface those excretions, which are continually poured out. The skin is an outlet, by which are discharged matters necessary to be thrown out of the system, for if retained, they would produce disease. These matters cause an incrustation over the surface of the skin, and this, to a certain extent, obstructs the little orifices, through which these exhalations take place. Physicians and surgeons are in the habit of observing deplorable instances of filthy concretions on the skin of poor patients, and this kind of neglect, unfortunately, is not confined to the lower class.

"Besides these exhalations, the surface of the skin becomes more or less charged with cuticular exfoliations, which ought to be removed daily. The linen taken from the body of a poor person, is sometimes seen to shed a shower of flakes of separated cuticle. The regular removal of these substances not only gives a more free outlet to cutaneous exhalation, but the act by which they are removed also serves to promote the healthy action of the capillary vessels of this organ.

"2d. The effect of cold water as a tonic is well known. The refreshing influence of water applied to the face, neck, hands, and arms, is a matter of general experience. The operation of cold water, applied to the whole surface of the body, is to produce an agreeable and refreshing sensation. This is followed by a glow more or less considerable, depending partly upon the difference between the temperature of the water and that of the body, and partly on the state of the body itself, to which the application is made. Immersion of the hand, or any other part of the body, in cold weather in tepid water, is followed by a sense of chilliness, while immersion of the same part, for a limited time, in iced water, is followed by a sensation of positive heat. Immersion of a part, or the whole of the body in cold water, causes an increase of vigor. This is particularly obvious in hot weather. When one, who is exhausted with heat and fatigue, plunges into

cold water, or receives the affusion of it over the whole surface of the body, the languid frame is immediately invigorated and prepared for new labors. This change is probably attributable to a uniform contraction of the small vessels, and a more regular flow of blood through the relaxed organs, thus reviving their vigor.

"In the same way congestions, by which the vital actions are impeded, are removed, and this not only in the external or cutaneous portion of the body, but also by the reflex nervous action of Dr. Marshall Hall, or sympathy, as it has been formerly called, in the great central organs, the heart, lungs, stomach, and intestines. Thus a great many diseases may be removed in the incipient stage; for vascular congestions, or accumulations of blood in particular vessels, by which the circulation is obstructed, constitute the origin of a great number of diseases. All those who have been in the habit of using cold water know, that an incipient catarrhal affection often disappears on its judicious application to the surface of the body. This disease is a congestion of the blood in the vessels of the membrane lining the nostrils, trachea, and lungs, arising, in this instance, from the application of cold air to the surface of the body. When cold water is applied to the skin it produces increased circulation in this part, and the blood is thus diverted from the internal organs. A

similar train of occurrences takes place in the germination of many diseases. The effect of the judicious application of cold water to the surface of the body is, therefore, to relieve temporary languor, remove incipient disease, and give permanent tone to the animal system."

THE WARM BATH. Dr. Johnson says;—"As the first instance of cold bathing, *as a remedy*, was that of Melampus bathing the daughter of the king of Argos; so Medea's cauldron is supposed to be the first record of the warm bath. From the derivation of the word, 'care-destroyer,' and the fabulous stories of old age restored to youth by the effects of Medea's boiler, we may suppose that the *warm* bath was highly appreciated in ancient times."

Dr. Cornell remarks:—"I have no doubt that a general use of the warm bath in our country would produce the most salutary effects upon the health and longevity of its inhabitants. The time will come when a change 'so devoutly to be wished' will take place, and the bath be generally used. There are, at present, many objections which are utterly unfounded, but which must, nevertheless, be removed, before this desirable era will dawn upon us with its blessings.

"To those who are not specially diseased, it is one

of the greatest luxuries of life, and, as such, it has ever been esteemed in the Eastern world. Homer tells us that Ulysses refreshed himself with the warm bath when he returned home from his toils and wars. It may be administered at any time, but promotes perspiration the most when taken in the evening. It may be taken to good advantage, when the person can retire immediately after it to bed. I think this the best time to receive the warm bath. If it be taken at any hour of the day, it should be followed by gentle exercise for an hour or more. There are various kinds of baths now administered, such as the Russian vapor, medicated, sulphur, iodine, &c. All these, when judiciously and properly used, may be serviceable, and worthy the attention of the valetudinarian or invalid.

"Every person must see the great utility of purifying the skin, when the amount of perspirable matter which passes through its pores is duly understood, and the sympathy between that and the internal viscera fully appreciated. This sympathy has been glanced at in the former part of this essay. Lavoisier, a celebrated French chemist, and many others, have estimated the exhalations from the skin alone to be about two thirds of the whole amount of meats and drinks taken into the system. How powerful, then, must be the free perspiration from this covering of the body, to preserve

the whole internal structure in health; and what a potent energy is it capable of exerting in relieving disease and restoring the deranged and disordered functions of the whole animal economy!"

The vapor bath is spoken of in the following language by Dr. Erasmus Wilson, in his treatise on A Healthy Skin:—

"The vapor bath offers some points of difference from the preceding, in the circumstance of extending its influence to the interior as well as to the exterior of the body. The bather is seated upon a chair, in a position agreeable to himself, and the vapor is gradually turned on around him, until the requisite temperature (from ninety to one hundred and ten degrees) is attained. The vapor is consequently breathed, and thus brought into contact with every part of the interior of the lungs. The vapor bath has undergone much improvement within the last few years, and its powers as an agent for the cure of disease have been increased by the discovery of various vegetable substances, whose volatile elements are susceptible of being diffused through the vapor, and, thus introduced into the blood, are made to act upon the system.

"Bathing and exercise are very closely allied to each other—they both stimulate the actions of the

skin, and both, if carried too far, are productive of fatigue. Bathing, again, is indebted to exercise for some of its useful properties. In like manner, the rules of bathing and those of exercise are very similar. Bathing, to be efficient in preserving health, should be regular, should be commenced by degrees, and increased by a process of training, and should not be permitted to intrude upon hours devoted to some important function, such as digestion. It must not approach too near a meal, that is to say, if it be attended with the least fatigue; nor must it follow a meal too closely, three or four hours being permitted to elapse. The time occupied in bathing in cold water by invalids should not exceed a few minutes, ranging, perhaps, from two to ten; but persons in health may carry it to the point of satiety, provided always that they combine with it active exercise. The period for the tepid, warm, or vapor bath, is from a quarter to half an hour, unless special indications require to be fulfilled.

"Another curious and important law is associated with the influence exerted by the bath over the state of the pulse, which is, a power of absorption by the skin below the neutral range, and an augmented transpiration above it. The absorbing power is modified by various circumstances, such as the quantity of fluids already contained within the tissues of the bather, the

state of the body in relation to food, activity of nutrition, &c. In this sense, medicated baths have the power of acting upon the system. The process is, however, slow, and requires long immersion when the water bath is used, but is more active with the vapor bath.

"The vapor bath is calculated to be extensively useful, both as a preservative and as a remedial agent. Many a cold and many a rheumatic attack, arising from checked perspiration or long exposure to the weather, might be nipped in the bud by its timely use. In chronic affections, not only of the skin itself, but of the internal organs, with which the skin most closely sympathizes, as the stomach and intestines, the judicious application of the vapor bath is productive of great relief. Even in chronic pulmonary complaints, it is, according to the Continental physicians, not only safe, but very serviceable, particularly in those affections of the mucous membrane which resemble consumption in so many of their symptoms. Like all powerful remedies, however, the vapor bath must be administered with proper regard to the condition and circumstances of the individual; and care must be taken to have the feet sufficiently warm during its use. If, from an irregular distribution of the steam, the feet be left cold, headache and flushing are almost sure to follow. If one-tenth of the persevering attention

and labor bestowed to so much purpose in rubbing and currying the skins of horses, were bestowed by the human race in keeping themselves in good condition, and a little attention were paid to diet and clothing; colds, nervous diseases and stomach com plaints would cease to form so large an item in the catalogue of human miseries."

OCCUPATIONS.

The indifference of parents to the healthfulness of the trades or occupations selected for their children is a matter of constant surprise and grief to me. Parents of consumptive taint, whose children are scrofulous, ordinarily make no objection to the son becoming a clergyman, watch-maker, tailor, accountant, or lawyer. The discriminating medical man can clearly foresee a long and miserable struggle with disease and death, with the grief and worse than death-struggles of a helpless family; but if the boy fancies one of these occupations, the father says, "I don't believe in forcing children in this thing; it is a matter in which they are most interested, and they should choose for themselves."

This is specious and seems very fatherly, but nothing is more thoughtless and cruel. What is it, pray, that generally awakens a boy's fancy for this or that trade? Is it not that he has *happened* to visit a shop or factory where said trade is being carried on, and is pleased with what he sees? When I was a boy, I went to a tin-shop to get a dipper repaired, and was so delighted with what I saw, that I scarcely slept for a week. I was burning to become a tinman. Now between you and me, I don't think I should have made a good tinker; but I should certainly have become one, but for the firmness of my parents, who had other purposes in my behalf. I do not believe that one boy in five has a whit better reason for selecting this or that occupation, than *I* had for choosing to become a tinman. A consumptive boy has a very dear friend, who is engaged in repairing watches. Our boy often sits by his friend, and becomes very much interested in the delicate operations of this occupation. His friend urges him to come and work by his side. When the day arrives on which he is to leave school and enter upon an occupation for life, he goes at once to the watch-shop; his parents comforting themselves with the reflection that they have allowed their son to follow his *natural bent.* The boy lives long enough to become a man, — a married man — and

then dies, leaving two or three children to struggle through life in the same blindness and pain.

Suppose it is his "*natural bent*," but that the business will probably lead to all the mischief I have indicated; clearly it is the duty of the parent to see that his son does not thus deliberately sacrifice himself.

If my son were consumptive, I would oppose his adoption of any one of certain occupations, no matter how strong might be his passion, for the same reason that I would oppose his adoption of the legal profession, if he were naturally scheming and money-loving, no matter how strong might be his bent for the law; just as I would oppose his adoption of the banker's or merchant's occupation, if he were naturally dishonest.

If our boy had, under the guidance of a wise physician, devoted his life to agriculture, or to any other active and out-door employment, he might have lived a long, healthy, useful and happy life, and left behind him a healthy, long-lived family.

Is this an extraordinary case? I think the majority of selections is not more discriminating. Thousands are sacrificed every year in the most lingering and painful way, under this strange hallucination of allowing children to select their own professions or trades.

I am acquainted in a small town in the State of New York, where the principal business is glass-blowing. This trade is, in almost every possible aspect, a most undesirable one; and yet the Superintendent assured me that so strong was the *penchant* for the business among the boys of the village, that he hardly knew one who would not eagerly embrace an opportunity to become an apprentice in the factory. Clearly, here is a case of what is popularly known as a "natural bent" for a certain occupation. Is it not remarkable that it happens to possess all the boys of that particular village?

In order to make the selection by the boy a reliable indication of his natural genius, he must have an opportunity to see, under equally favorable circumstances, a great variety of trades, and hear, from his father, or some other reliable friend, a full explanation of the advantages and disadvantages of each, with reference to physical, intellectual, social, moral and religious tendencies and effects. Then, if an average boy, his selection may be trusted.

Obviously his choice is usually the accident of an accident, and should not be regarded any more than his fancy for a hundred other things, which we do not hesitate to deny him.

I do not mean that children should have nothing to say about their future lives, but I do believe that

the experience and wisdom of the parents are designed to serve the child — to guard, guide and protect it. If the parent does not guide his child in the selection of his occupation — the most important of all steps in human life — I cannot conceive in what case the parental responsibility should be exercised.

I hear it said, if the boy is not allowed a free choice, he will never be satisfied. But who does not know that when the boy *does* select his own trade, that, in perhaps a majority of instances, he is dissatisfied, not to say disgusted, with the choice he has made. If the child be clearly shown by a proper parent that a certain trade would probably lead to disease and premature death, there would be little danger of the grave mistake we are considering.

There is a wonderful significance in that phrase, "the right man in the right place."

Last summer I was riding through an agricultural district in an adjoining State. In a field by the roadside I saw a farmer ploughing with a pair of bright, active horses. I stopped to admire his team. He told me "they could do it, together, inside of 2.55." While we were chatting, a doctor came along with a 1200 lb. clumsy horse, — a splendid animal he assured us, had drawn a ton up a steep hill — but he confessed it took a good deal of whip to get him along seven miles an hour. Now if this strong plough-horse

could have been transferred to the plough, and one of those nervous, active little fellows over the fence could have been put to the carriage, it would have been all right.

The same mistakes we find among men — little, active, bright fellows plodding in a ditch, while great, bony, muscular, sleepy clowns are stumbling and blundering along as doctors or preachers.

But to return to occupation as bearing on consumption. I have long entertained the conviction that our bills of mortality from this dreaded malady would be greatly reduced by a wise selection of occupations.

Those occupations which compel the workers to remain within doors, and out of the sunshine, those which render complete ventilation difficult, those which compel a stooping attitude, those which compel the workers to remain long in one position without motion, or actual exercise, those in which dust or vapors of any kind are breathed, are all to be avoided by all persons, of either sex, who have tendency to consumption.

A farmer has four sons — two robust and two delicate ones. He divides his farm between the two strong boys, and consents to the banishment of the two delicate sons from the fresh air and sunshine, by making one an engraver, and the other a clergyman. The same blunder is often made by heads of families.

SUNSHINE.

Seclusion from sunshine is one of the misfortunes of our civilized life. The same cause which makes potato vines white and sickly, when grown in dark cellars, operates to produce the pale, sickly girls that are reared in our parlors. Expose either to the direct rays of the sun, and they begin to show color, health, and strength.

One of the ablest lawyers in our country,—a victim of long and hard brain-labor, came to me a year ago, suffering with partial paralysis. The right leg and hip were reduced in size, with constant pain in the loins. He was obliged, in coming up stairs, to raise the left foot first, on every stair, dragging the right one after it. Pale, feeble, miserable, he told me he had been failing several years, and closed with, "My work is done. At sixty, I find myself worn out."

I directed him to lie down under a large window, and allow the sun to fall upon every part of his body; at first, ten minutes a day, increasing the time until he could expose himself to the direct rays of the sun a full hour. His habits were not essentially altered in any other particular. In six months, he came running up stairs like a vigorous man of forty, and

declared, with sparkling eyes, "I have twenty years more of work in me."

I have assisted many dyspeptic, neuralgic, rheumatic, and hypochondriacal people into health, by the SUN-CURE. I have so many facts illustrating the wonderful power of the sun's direct rays in curing certain classes of invalids, that I have seriously thought of publishing a work, to be denominated the "SUN-CURE."

I take the liberty of introducing another case, which greatly impressed my mind at the time.

Many years ago, a clergyman who had for years been a victim of dyspepsia, and who had prayed for death, as the only door of escape, came, through the advice of a mutual friend, to consult me. I advised the disuse of all medicines, the generous use of cracked wheat, good beef, and much exposure to sunshine. To secure the last-mentioned influence, I directed him to enclose twenty feet square in his garden with a close fence, and plant the ground within with something, the cultivation of which would occupy his mind. Then, when the weather was warm, shutting himself in, he was to busy himself, *quite nude*, with the cultivation of his vegetables, from ten to sixty minutes a day, always indulging in a thorough bath and friction before leaving. *He was radically cured.*

I was practicing my profession in Buffalo, New York, during '49 and '51, those memorable cholera seasons. I saw at least five cases of cholera on the shady side of the street and houses, to one on the sunny side. One eminent physician in New Orleans reports from his own practice, eight cases of *yellow fever* on the shady side of the street, to one on the sunny side.

Who has not read Florence Nightingale's observations in the Crimea, showing the difference between the shady and the sunny sides of the hospitals? In St. Petersburg the shady side of the hospitals was so notoriously unfavorable to the sick soldier that the Czar decreed them into disuse.

The shade-trees about our dwellings have done much to make our wives and daughters pale, feeble, and neuralgic. Trees ought never to stand near enough to a dwelling to cast their shade upon it; and if the blinds were removed, and nothing but a curtain within, with which to lessen, on the hottest days, the intensity of the heat, it would add greatly to the tone of our nerves and to our general vigor. The piazzas which project over the lower story, always make that less healthy than the upper story, especially for sleeping purposes. I am sure I have cured a great many cases of rheumatism by advising patients to leave bed rooms shaded by trees or piazzas, and

sleep in a room and bed which were constantly dried and purified by the direct rays of the sun.

THE BEST BED.

Of the seven pounds which a man eats and drinks in a day, it is thought that not less than two pounds leave his body through the skin. And of these two pounds a considerable percentage escapes during the night, while he is in bed. The larger part of this is water, but in addition there is much effete and poisonous matter. This being in great part gaseous in form, permeates every part of the bed. Thus, *all parts of the bed*, *mattress*, *blankets*, *as well as sheets*, soon become foul and need purification.

The mattress needs this renovation quite as much as the sheets. To allow the sheets to be used without washing or changing, three or six months, would be regarded as bad house-keeping; but I insist, if a thin sheet can absorb enough of the poisonous excretions of the body to make it unfit for use in a few days, a thick mattress, which can absorb and retain a thousand times as much of these poisonous excretions, needs to

be purified as often, certainly, as once in three months.

A sheet can be washed. A mattress cannot be renovated in this way. Indeed, there is no other way of cleansing a mattress but by steaming it, or picking it to pieces, and thus, in fragments, exposing it to the direct rays of the sun. As these processes are scarcely practicable with any of the ordinary mattresses, I am decidedly of the opinion, that the good old-fashioned straw bed, which can, every three months, be changed for fresh straw, and the tick washed, is the sweetest and healthiest of beds.

If, in the winter season, the porousness of the straw bed makes it a little uncomfortable, spread over it a comforter, or two woollen blankets, which should be washed as often as every two weeks. With this arrangement, if you wash all the bed covering as often as once in two or three weeks, you will have a pleasant healthy bed.

Now if you leave the bed to air, with open windows, during the day, and not make it up for the night before evening, you will have added greatly to the sweetness of your rest, and, in consequence, to the tone of your health.

I heartily wish this good change could be everywhere introduced. Only those who have thus attended

to this important matter, can judge of its influence on the general health and spirits.

OUR HAIR.

The management of our hair has much to do with the health of the respiratory apparatus. Cutting it short behind, and thus exposing the upper part of the spine to the changes of the atmosphere, exerts an injurious influence upon the larynx and its contained vocal apparatus. The present fashion among women, of hanging the hair in a net on the back of the neck, is not only physiological, but, in my opinion, in excellent taste.

Shaving off the beard exposes the larynx and trachea. If it be asked why man needs this protection more than women, I reply, that the larynx, which, in women, is buried in and surrounded by the soft parts, is in man, prominent and exposed; and if the neck be nude, greatly exposed to atmospheric influences. But a better reason is this:—God contrived the beard for man's neck. It is His plan that man should wear this protection over the throat. In the light of this evident purpose of the Creator, I think any elaborate argu-

ment is in bad taste. I may add, however, that shaving the upper lip is now well known to affect the eyes prejudicially.

POSITION.

In its relation to the health of the chest organs, this is an important subject. The throat and lungs are prejudicially affected by drooping shoulders. If you repeat a poem, with the head and shoulders well drawn back, and again with the head and shoulders drooping, even one who has given no attention to the subject will, at once, detect a marked difference in the character of the voice. All advantageous exercise of the vocal organs, involves spinal erectitude. What is true in this respect of the vocal apparatus in the throat, is still more marked in its application to the muscles of respiration. When the shoulders fall forward, even slightly, the combination of muscular action involved in the processes of inspiration and expiration, is changed.

To illustrate, let me speak of false positions seen in our schools. The desks are so constructed that the pupil must stoop; it is indispensable that the line of

vision should form nearly a right angle with the surface of the book; but the page, as it lies upon the desk, is nearly horizontal; of course the face must be held nearly horizontal. This involves a serious departure from the normal attitude, in which the face is nearly perpendicular. . The pupil may often be observed, in the attempt to overcome this difficulty, by placing something under the upper end of his book. When the pupil is using an atlas or slate, the evil becomes still greater, for, not only must he hold his face nearly parallel with the surface of the atlas, to see the part nearest him, but when he would look at the farthest part of the page, he must carry his head a foot farther forward, involving a serious bending of his body.

As a teacher of gymnastics, I have been deeply concerned about this false position of the pupil. I have seen that all my attempts to cultivate an erect position in my pupils, by a half hour's gymnastic training daily, when, during four or five hours, they were sitting in this bent attitude, must prove a failure.

Within the last six years I have devised several means of overcoming the difficulty. One of these was discussed in a former work,—the "New Gymnastics for Men, Women, and Children." Within the last two years I have invented and patented a book-

holder which is, we all think, the long-sought-for cure.

Fig. 1.

It is seen in *Fig.* 1. The ladder, which is very strong, is sustained in position by a wire pall and strap, with hook, by which it may be made more or less oblique at pleasure. The finger bars hook on to the cross rounds, at any desired height. One or two books may be used. The fingers hold the books open. There is no hinge, the wire pall simply entering small holes in the side rounds. No device is less liable to get out of repair.

Fig. 2 shows the book-holder when supporting two books. The classical student finds in this invention the means of holding his reader and lexicon before his face, allowing him to rest against the chair-back.

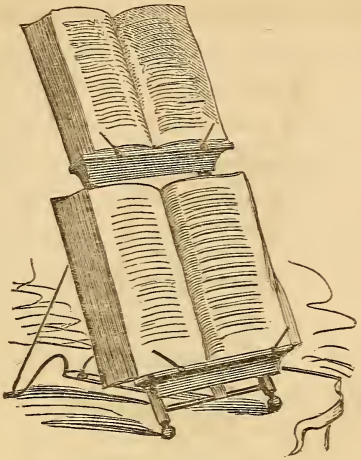


Fig. 2.

Fig. 3.

Fig. 3 shows the position of the student when using the holder. Wherever introduced, it has given complete satisfaction.

N. T. Allen, Esq., principal of the large English and classical school at West Newton, Mass., writes:

"The student's book-holder, invented by Dr. Dio Lewis is in use on the ninety-six desks in my principal school-room. Stooping over the desk, which has heretofore proved a great evil in its influence upon the form and health of the pupil, is by this simple device rendered almost impossible. It is a benificent invention which every true educator will desire to see universally introduced."

I could introduce numberless testimonies of a similar character.

The new book-holder has found its way to every part of the Northern States, to the Pacific coast, and to England.

It will prove invaluable to all classes of readers. The clergyman, for example, may use two or three of them upon his table, holding twice as many books, and he may place them about him in a semi-circle, so that he can refer to any of the books without leaning forward or changing his position. The accountant, who is constantly stretching forward to read his blotter and day-book, will, by this simple device, have them brought before his face, so that he has but to raise his eye to catch the page. I confidently believe

that this book-holder will accomplish more than all other means yet presented, to correct the habit of stooping, and will thus do much to save the organs of the chest.

But, to return to schools. False positions are not confined to sitting attitudes. When the pupil rises to walk, he is often required to place his arms in some position which produces stooping.

Fig. 4.

Fig. 4 is the worst of these false positions. The pupil *may*—with his hands thus locked behind—draw his shoulders back; but if you will watch a school of one hundred pupils as they march along, with arms thus placed, you will observe that not one of them *does* carry the head and shoulders erect.

Fig. 5.

Fig. 5 displays another unhealthy position. With the arms thus folded, the respiration is checked, and the shoulders drawn forward. If the reader will stand erect, shoulders and head well drawn back, his arms by his side; then fold them across the chest in front, and carefully observe the change in the position of the shoulders, and in his ability to inflate his lungs, he will clearly see how this attitude cramps the respiratory function. Experimenters have proved that the amount of air which the lungs can take in at a single inspiration, is greatly lessened when the arms are thus folded.

Fig. 6.

Fig. 6 is a good position, opening the chest, and securing a noble attitude of the spine.

Fig. 7.

Fig. 7 is somewhat unseemly, but in a physiological aspect, the best possible position for the pupil's arms. It would do much, if practiced five minutes, two or three times a day, with the head well drawn back, to strengthen the muscles of the spine, and particularly those of the neck, whose weakness permits the head to droop. This drooping of the head is almost universal among Americans, especially among American women. I commend this bit of muscular training to the consideration of teachers.

Carrying the hands in a muff, or clasped in front, at the waist, so common and constant among ladies, is an unphysiological habit. The arms should be carried at the side, and swung. I think taste as well as physiology demands this. That peculiar waddling, which women exhibit when moving rapidly, is the result of this joining the hands in front. Let any gentleman who would study the effects of this false position of the arms, experiment upon himself, and he will be satisfied that the usual and fashionable manner in which ladies carry their arms in walking, spoils the gait and contracts the chest. Swinging the arms is a most important part of the exercise of walking. To undertake it with the arms folded, or the hands in a muff, is to spoil it, both in the aspect of beauty and usefulness.

IS CONSUMPTION CONTAGIOUS?

Morgagni and other eminent physicians of former times believed in the contagiousness of consumption, and so strong and general is this belief in Southern Europe, even now, that the furniture of the room where a person dies of this malady, is burned. Only recently, a law existed in Rome by which the proprietor of a house might claim payment for such furniture, which by the law must be burned. The general opinion now among writers on the subject, in England, France, and the United States, is against the contagiousness of the disease.

These writers have not failed to observe that often an entire family, one after another, dies of pulmonary consumption; but this they think is to be traced to hereditary predisposition, or to some general causes which operate alike on all the family. Often it can be traced to loss of sleep, mental grief, etc., in attendance upon the sick. As I have intimated, it is now agreed that phthisis is not contagious, but it is advised that persons who are predisposed to the disease should avoid remaining long in small rooms with phthisical persons, and particularly that they should avoid sleeping with such persons.

CONSUMPTION PREVENTED.

I have spoken of the treatment of consumption. The residue of the work is devoted to its treatment. But in this malady a ton of cure is worth less than an ounce of prevention.

I have just lectured upon the causes and prevention of pulmonary diseases to fifty young ladies in a seminary of this city. Judging from statistics and the appearance of my audience, ten or twelve of them will, in the usual course of things, die of consumption. But the skill and care needed to cure one, after the disease is established, would prevent the disease in the ten or twelve candidates.

It is easy to prevent a thousand boys from learning to chew tobacco. It is hard to induce one man to abandon the use of it. The Associations known as the "Cadets of Temperance" have saved thousands of boys from the vice of drunkenness. The temperance societies have saved very few drunkards.

The general adoption of hygenic measures would save *thousands* who might otherwise fall victims to consumption, and with far less thought and care than are required to cure *one* after the disease has been developed.

If I am asked how the parent can determine the existence of the predisposition, and therefore the necessity of preventive measures? I reply, do not be alarmed! give all your children good health, it will not harm them; and if you should, by mistake, give vigorous health to one who is not consumptive, it would not prove the greatest calamity! Even a weak spine, a dyspeptic stomach, or an aching head is not so great a blessing that it might not be spared. Expend upon your daughter's body one-quarter as much as you devote to her music, and if the expenditure be wisely directed, you will, unless her constitution be incorrigibly bad, save her from all physical maladies. You may not think so, but I assure you that during her life she will be more grateful to you for this attention to her physical health than for all the Music and French you can give her. And if you will pardon the apparent extravagance of the statement, I believe a good, vigorous body would be worth a thousand times as much to her as the Music and French. I would not underrate mental accomplishments. I wish their number and completeness could be greatly augmented, but their value, as compared with physical symmetry and health, has been ridiculously overrated.

In the present condition of the young in this country, from one-quarter to one-third of the school-hours should be given to physical training. Such a

policy would not only lead to health and strength physical, but would evoke healthier mental and moral conditions. If through one or two generations this work be well done, less care will then be needed.

And such a policy we shall adopt in the school to be opened in Boston next Autumn.

This preventive policy should not be confined to school children. The thousands who are to die of consumption during the next year, are now, most of them, in a condition to be saved. What will save them? Not to weary the reader by repetition, I will simply reply, that the instructions given in this book will guide them. But the difficulty, already mentioned, is this: — how shall these candidates for consumption ascertain the fact of their predisposition? Every person who is not perfectly well, should at once seek to become so. The investment will not be a ruinous one. Good health is no great loss, even if you are in no danger of dying immediately of consumption. It will certainly be worth a thousand times as much as the earthly gains which you seek with such eagerness.

The instructions given in this work for consumptives, are without exception, applicable to all persons with weak chests.

IS CONSUMPTION CURABLE?

A great number of eminent practitioners, both in Europe and America, declare without reserve, that consumption, even in the third stage, is curable. The dissecting room presents, in the form of scars in the lungs, indubitable proof of the curability of consumption.

Dr. Abernethy asks, "Can consumption be cured?" And replies, "this is a question a person who has lived in a dissecting room would laugh at."

Sir James Clark declares, "that pulmonary consumption admits of cure, is no longer a matter of doubt. It has been clearly demonstrated by Lænnec and other modern pathologists."

Dr. Carswell says, "Pathological Anatomy has perhaps never afforded more conclusive evidence of the curability of any disease, than it has of tubercular phthisis."

"What else," asks Prof. Calkins, "than the curability of phthisis, do the facts demonstrated by morbid anatomy—of cavities and cicatrices in the lungs—prove?"

While Dr. Sweet warmly declares, "From the recoveries I have witnessed, I will never despair of the life of a patient with phthisis."

Lænnec, whose investigations threw a flood of light on the nature of pulmonary consumption, states:—"In some cases, consumption is cured by nature, in the last stages, after the softening of the tubercles and the formation of an ulcerous excavation."

Dr. J. Hughes Bennett, who examined a great number of lungs, in which evidences of former ulceration were found, in the form of puckerings and concretions, expresses himself thus:—"That my observations, with those of Roger and Boudet, establish the fact that the spontaneous cure of tubercle occurs in the proportion of from one third to one half of all consumptives who die of other diseases after forty years of age."

An eminent London physician, in an able work on diseases of the chest, expresses the belief, "that true consumption is sometimes cured in its most advanced stage."

A distinguished French surgeon, M. Fournet, declares that he "met, in the course of one year, fourteen cases of confirmed consumption, which were cured, besides ten other cases in which dissections revealed the traces of caverns which had become perfectly healed."

In the Medico Chirurgical Review, the same physician declares his conviction "that consumption, in all its stages, is frequently cured."

The eminent Dr. Parrish, of Philadelphia, had consumption in early life, and cured himself by riding over the pavements in that city, in a carriage, without springs, while visiting his patients. After death his lungs were examined and scars were found in them.

A case is given by Dr. Chisholm, of a soldier laboring under the worst symptoms of the disease, "who, taken prisoner by the enemy and forced to make a long march, was cured."

In addition to the three cases cured by the hardships of military life during the revolutionary war, Dr. Rush gives another, of a young man from New Jersey, who was sent to sea for consumption. He was taken prisoner by a British cruiser, and compelled to work as a common sailor. When, after two years, he escaped and returned home, he was in fine health. He cites another case cured by constant horseback riding, as a courier. Dr. Rush shared with Sydenham the conviction, that this species of exercise, regularly and long continued, was as sure a cure for consumption as bark for an intermittent.

It is amusing to read the testimony of those medical men who declare that pulmonary consumption is absolutely incurable. It is strange that they will ignore such testimony as I have brought forward. If scars were presented in other parts of the body, they would not doubt that they originated in destructive disease.

If true pus were secreted in other tissues, they would not doubt that lesion had occurred. But in the case of tuberculous disease of the lung tissue, they start, not upon the basis of pathological facts, patent to every observer, but with the *assumption* that the disease is incurable, and, to maintain this assumption, they stoutly contend, no matter what the testimony of the stethescope, that if the patient recover, the case was not true consumption.

The testimony of many medical men against the curability of this disease, rests upon the constant failure of the means they have employed in its treatment. Because the drugs they have administered, fail, they say, ergo, the disease is incurable. That consumption is incurable by medicines, I admit. That it is often cured by pure air, exercise, and other similar agencies, no intelligent and candid physician can doubt.

I quite agree with the following from an eminent writer :—

"There seems, indeed, no reason why cavities in the lungs should not heal with the same frequency as ulcerations or abscesses in other internal organs, if the fresh deposit of tubercle be arrested. This is only to be accomplished by overcoming the pathological conditions on which tubercle depends. These are, First,

a morbid state of the blood, the result of imperfect nutrition; Second, local inflammation, by means of which an unhealthy exudation is poured out, which assumes the form of tubercular or scrofulous matter. The indications for treatment are, First, to overcome all indigestion; Second, to furnish the material for healthy chyme; and, Third, to combat local inflammation."

In the light of such testimony, from such authorities, and in view of my own experience, I cannot say, even to those who have reached the third and last stage of the malady, "You must die! there is no hope for you!" If the patient is intelligent and resolute, and can give up his time to the treatment, I conscientiously say to him, "There is hope; you may recover! If you are willing to eat right, sleep right, bathe right, and exercise right, you *may* be a well man again."

I trust I shall not be misunderstood. I do not say that all consumptives, after reaching the third stage, can be cured, even if surrounded by the most favorable circumstances. But I do mean, that even in the last stage, some of them can be cured. There are now on record more than a thousand cases in which puckerings, scars, or concretions in the lungs, testify to the possibility of such cure. And most of these have been witnessed by eminent medical men, in post mortem examinations, in the hospitals of Europe. I have said

a thousand such evidences have been witnessed. I presume the number has reached *ten* thousand, but I speak only of those reports which two or three hours' reading in my library, with reference to this point, has enabled me to collect.

But whatever opinion may be entertained of the curability of the disease after it has reached the stage of softening, I have no doubt of the manageability of phthisis while the tubercles are yet hard and uninflamed. I do not mean that the tubercles will be absorbed, but that the constitutional symptoms will be removed, the patient will recover his flesh and strength, and live on to old age. This is not only possible but entirely practicable in a *majority* of patients while yet in the first stage of consumption.

I would not overrate the value of fresh air, sunshine, bathing, friction, exercise and other hygenic agencies; but do I not simply echo the voice of the wisest physicians, in claiming that such influences will cure this dreaded malady in many cases?

Next Autumn we shall open in Boston an institution for the treatment of this class of invalids. Those who are in earnest, who are willing to live on plain, substantial, unstimulating food, go to bed at eight o'clock, sleep in well ventilated rooms, take the proper baths, submit patiently to all the general and special exercises of the Movement Cure which may be prescribed

for them, and spend from three to six hours a day on the back of a pony, in all sorts of weather — such patients may find in this institution the beginning of a new life.

RECREATIONS.

I must mention, first, several recreations which are peculiarly injurious to consumptives. Of these, the theatre is perhaps the worst. How any sane invalid of this class can sit four hours in the vile atmosphere of one of these dens amazes me. Should a patient of mine, belonging to this class, attend a theatre, I should feel conscientiously impelled to abandon his case at once. Whatever may be said of its morals, the atmosphere of the place is abominable. Language almost as strong may be applied to the concert-room and to fashionable parties. A young lady with consumptive taint goes through the fashionable round of theatres, parties and concerts. At the same time she is swallowing cod-liver oil, and wearing counter-irritants. Can anything be more absurd and pitiful ?

Games of cards, chess, draughts, &c., in which the players are pretty sure to sit in heated rooms, with drooping shoulders and little motion, are all injurious.

While many popular amusements are mischievous, it is nevertheless true that recreations constitute one of the most important agencies in the prevention and cure of consumption. Those amusements in which there is boisterous laughter, and social exhilaration, are wonderful in their influence for good.

Out-of-door-sports are particularly valuable. Hunting, fishing, (for those who are fond of killing,) rowing, sailing, skating, (if not too cold,) ball-playing, hoop-rolling, rope-skipping, *walking*, saddle-riding, swimming, and in brief, any one of the many vigorous open-air games, is invaluable.

The practical study of botany, geology, or mineralogy, would give health to thousands who are now dying over Greek and Latin lexicons, to say nothing of the infinitely better influence upon head and heart.

Among the sports, I particularly commend foot-ball, battledore, and those games in which shouting is necessary. To feeble patients, horseback-riding is of incomparable value.

If the invalid be properly dressed, he may enjoy out-door sports during all sorts of weather. Neither rain, snow, nor wind, should deter him. The patient who remains in-doors during all the bad weather in this climate, will go out but little. While walking is, per se, inferior to many modes of out-door recreations, it is, I think, for obvious reasons, the most valuable

of them all. It can be enjoyed by all classes, by persons of all ages, and almost all degrees of strength, without preparation, without expense, and at all seasons of the year. And in addition to all these advantages, it is, if rightly performed, an excellent exercise in itself,—gentle or vigorous at pleasure.

I said, if rightly performed; for few persons know how to walk. And yet the essential feature of a good gait is an erect spine.

If the invalid is at liberty to choose the hour for his out-door exercise, he should select, during most seasons of the year, the middle of the forenoon. As second best, four or five o'clock in the afternoon. And as third best, the early morning. Those who have most vitality, often find an early hour the best. *Every consumptive should live as constantly as possible in the open air.* I repeat that if you are well clad, fog, rain, and other atmospheric conditions which are generally considered unfavorable, will do you no harm.

When advised to walk, patients often reply, I cannot walk for the mere sake of walking; I must have some other object. Let me supply you with that object. I'll suppose you are a woman. You live in a city. Extend your next walk into a suburban locality. Enter a negro cabin; sit down in their midst; speak with them as a sister; tell pleasant stories to the little ones; talk with them earnestly about their

health; explain in a simple way the laws of ventilation; tell them how tobacco spoils their brains and lungs. Leaving with an affectionate good-bye, you promise to come again in a week. They will talk of nothing else, and will look forward impatiently to the time when "that sweet angel will come." If your pocket is full, you may give them other and substantial reasons for a hearty welcome. If you have a woman's heart, you will not lack for an object the next time you go that way. If you make acquaintances similar to this, but with pleasant variety, in six different directions, your head and your heart will be full every day of the week. You will forget your health and enjoy every walk, inspired by a truly Christian sentiment.

While speaking of walking, I must tell you something amusing, You know we have in Boston a beautiful Common and Public Garden. Together, they offer the finest possible opportunity for a morning or evening walk. We are greatly crowded, and need more than the people of any other American city just the opportunity afforded by these delightful grounds. Now, you will hardly believe it, but it is nevertheless true, that not one fashionable lady in ten ever steps inside of the Common. It is not the *style*. The common people are there. Beautiful birds and squirrels, and trees, and walks, all woo the occupants

of the great houses in the neighborhood to come out into the cool breezes and fragrance, but not a soul will stir, because the "common herd" go there. Last evening was a delightful one on the Common. With my wife, I went out at 7 o'clock to see and feed the squirrels. The park was charming. Great crowds were there. But not one of the ton could be seen. "Our set does not frequent the Common." Really, for this democratic country, where every "man's a man for a' that," this is the strongest case of biting one's nose off, for the style of the thing, I have ever seen.

I ought, however, to say, that among the true aristocracy of Boston there is a hearty appreciation of our public grounds, greatly enhanced, during their frequent walks, by meeting crowds of the poor who flock from the narrow, dark streets to breathe the pure air, and sit or recline in the blessed sunshine.

Moral.—You should accept most gratefully the blessings of Heaven in this world, and Heaven itself hereafter, even if your companions do not belong to "our set."

Speaking of the Common, we took our regular morning walk this morning, (May 21st,) at 5 o'clock. We made the entire circuit of the Common and the Garden. The morning was warm, but we saw among the hundreds of houses only twelve windows open.

This indicates immense vitality on the part of these favored people. I am sure I should fall sick if thus shut up, away from the pure air.

EXERCISE.

Motion is the great law of the universe. It is the first instinct of animal life. When it ceases, life ceases. The degree of life may be measured by the amount of normal motion. When the life-forces run low, the natural and most effectual method of invigorating those forces is found in motion.

The popular education of our children is a lamentable violation of this law. The young child, left in freedom, keeps its nurse on the *qui vive* during every waking hour by its uncontrollable activity. The effort which our school-system makes to crush out this instinct, by compelling children to sit on hard chairs, bent over desks, motionless, six hours a day, is, considered in its influence upon the vitality of the nation, the saddest of all possible mistakes.

A radical change in this respect is imperatively demanded by the growing intelligence of the people. The Germans,—God bless them!—having given more

faithful study to the various problems of human development, have devised better modes. The Kindergarten, one of the many beautiful blossoms of the genius of that noble people, is being transplanted to this country. Wise parents, thank Heaven, and take heart. Miss Peabody's Kindergarten, in Boston, should be visited by the friends of education

Nothing at this hour is so much needed in the development of the young as some system of physical training, which, under competent masters, may be introduced as a part of the daily drill into all our schools, public and private. The routine should be so arranged that study and physical exercise should alternate in periods not longer than half an hour through out the day.

For example: the school opens at 9 o'clock. The first half-hour is devoted to study and recitation. The second is given to vigorous training in the gymnasium under a drill-master, and to music. The third to study and recitation. The fourth to drill, in which those with weak stomachs form a class by themselves, with special exercises; those with weak chests another; those with weak spines still another: all classified and treated according to their several needs. The fifth half-hour to study and recitation. The sixth to declamation, singing, or culture of the vocal organs, in general and special ways. The seventh and eighth

half-hours to study, conversation, &c. And again in the afternoon an alternation of intellectual and physical exercises, the latter so ordered as to bring into play every muscle, and thus secure the symmetrical development of the body. Who can doubt that under this system greater progress would be made in intellectual culture than at present? The mind would find more effective tools for its work.

But, with an incredulous shake of the head, the people say, "Yes, this is all very fine, but quite impracticable." If by this they mean that it is not practicable until the public conscience is better enlightened, I grant the force of the objection. But if they mean to say, that, with a due appreciation of physical culture, such a school is an impracticability, I am confident they are mistaken. The order I suggest could be introduced in a week in any existing school, did the parents and teachers so will. I am happy to be able to say that such a school as I have described, possessing all the best facilities for classical and scientific instruction, and under the management of eminent educators will be opened in Boston on the 1st of October, 1863.

Theodore D. Weld, for many years at the head of the Eagleswood School, in New Jersey, will preside over one of the most important departments of the institution. This announcement will be received

by Mr. Weld's friends with sincere gratification. It was feared that this esteemed and beloved teacher had definitely retired from the educational field.

I shall have the honor to preside over the department of Physical Culture.

A circular containing the names of the teachers, with the special and general features of the institution, can be obtained by addressing Dio Lewis, Box 12, Boston Post Office.

In every part of the North we see young persons with large, active brains and defective bodies. To such, this school will offer facilities for an integral and symmetrical education; such, I believe I may say, without injustice to others, as have not been found in any school of modern times.

This school has been determined upon from the conviction that only in beginning with the rising generation, can the results of physical culture, or the system combining both physical and intellectual culture, in their natural relations, be thorough and satisfactory, and that the results of this experiment would do more than all that can be said or written to arouse public attention.

It is with much sacrifice to myself, that I consent to superintend the physical training of the new school. But I am deeply impressed with the conviction, that the effects of such a course of training, as seen not only

in the symmetry and vigor of the body, but in the mental and moral progress of the pupils, will inaugurate a new era in our American system of education.

Galen informs us that "If diseases take hold of particular parts of the body, there is nothing more sure to drive them out than diligent exercise."

Lord Bacon declared, "there was no disease whose further development could not be prevented, or which at the commencement could not have been cured by bodily exercise."

Hufeland says, "If young children are compelled to sit quietly in a room, and their young minds urged to action, *we take from them the noblest part of their strength, and consume it in the function of thinking.* Thus growth is retarded, the limbs imperfectly developed, the muscles weakened, digestion becomes bad, scrofula appears, and then ensues a great predominance of the nervous system. Any unequal development of our faculties is injurious, and it is certain that mental exertions weaken the more they are unaccompanied by bodily movements. It is also certain that those who, between their mental occupations, go through suitable bodily exercises, can work much more than those who neglect this exercise of the body; give a child suffi-

cient muscular motion, so that its store of nervous strength can be turned to the muscles of volition. Let a child exercise daily and often in pure air, until fatigue follows, and I am sure he will not think of vicious practices. These are the attendants of sedentary education in boarding schools and monastic establishments, where exercise is measured by half hours.

"Gymnastics act on the courage, producing independence and presence of mind. No man can possess much courage with a narrow chest and half developed lungs. They produce cheerfulness and regulate the fancy and imagination. They also diminish a predisposition to moral faults that undermine health and bodily purity."

Rousseau says that "All sensual passions are found in effeminate bodies; while the more they are roused the less they are satisfied. A weak body weakens the mind."

Plato, the greatest of ancient philosophers, says, "excess of bodily exercise may render us wild and unmanageable; but excess of art, science and music, makes us *fuddled and effeminate*. Only the right combination of both makes us wise and manly."

Another writer says, "Gymnastics in concert, by

both sexes, with music, cultivates friendship, noble sympathies, accuracy, order and discipline, and does for the body what intellectual training does for the mind — educates and strengthens it. Body education is not less important than mental training. When we consider how intimate is the relation between the respiratory capacity and the tendency to consumption, we cannot fail to see the importance of wisely regulated muscular training. Exercise greatly increases the capacity of the lungs."

Says a distinguished writer, "if you wish to develope the mind of a pupil, exercise his body; make him healthy and strong, that you may make him prudent and reasonable."

Sweetser says, "Were I required to name the remedy which promises most aid in the onset of consumption, I should say, daily gentle and protracted exercise in a mild and equable atmosphere. . . . . Exercise, moreover, determines the blood to the surface of the body, rendering the cutaneous functions more active and healthful, and may in this way also contribute to the advantage of the lungs."

Dr. Parrish says, "that vigorous and free exposure

to the air is by far the most efficient remedy in pulmonary consumption."

Dr. Pitcher states that "the consumptive Indians of the Osage tribe have their symptoms suspended during their semi-annual buffalo hunts, but that these soon return on becoming again inactive in their towns."

Dr. Chambers, physician to St. Mary's Hospital, says, "If we examine the history of those who have lived longest with consumption, we shall not find them to have been those who have lived in-doors, hanging their lives on their thermometers." He gives the case of a friend of his "who from his youth has had tubercular disease, but has kept hounds, contested elections, sat in Parliament, but never allows any one to doctor his chest."

THE GOOD AND GREAT DR. RUSH, whose writings upon the throat and lungs have been regarded as more valuable than those of any other American author, his work on the voice, constituting a great fountain, from which all subsequent writers, both in America and Europe, have largely drawn—this personal friend of Washington, and father of American medicine, has spoken more explicitly than any other writer, upon the importance of EXERCISE IN CONSUMPTION.

And, as the great majority of those who will peruse these pages have never seen Dr. Rush's works, I take the liberty to transcribe largely from one of his books.

"SEA-VOYAGES have cured consumption; but it has been only when so long, or so frequent, as to substitute the long continuance of gentle, to violent degrees of exercise of a shorter duration, or where they have been accompanied by some degree of the labor and care of navigating the ship.

"A CHANGE OF CLIMATE has often been prescribed for the cure of consumption, but I do not recollect an instance of its having succeeded, except when it has been accompanied by exercise, as in travelling, or by some active, laborious pursuit.

"Dr. Gordon, of Madeira, ascribes the inefficacy of the air of Madeira, in the consumption, in part to the difficulty patients find of using exercise in carriages, or even on horseback, from the badness of the roads in that island.

"JOURNEYS have often performed cures in the consumption, but it has been chiefly when they have been long, and accompanied by difficulties which have roused and invigorated the powers of the mind and body.

"VOMITS AND NAUSEATING MEDICINES have been much celebrated for the cure of consumption. These, by procuring a temporary determination to the surface of the body, so far lessen the pain and cough, as to enable patients to use profitable exercise. Where this has not accompanied or succeeded the exhibition of vomits, I believe they have seldom afforded any permanent relief.

"BLOOD-LETTING has often relieved consumptions; but it has been only by removing the troublesome symptoms of inflammatory diathesis, and thereby enabling the patients to use exercise or labor with advantage.

"VEGETABLE BITTERS, and some of the STIMULATING GUMS, have, in some instances, afforded relief in consumption; but they have done so only in those cases where there was great debility, accompanied by a total absence of inflammatory diathesis. They most probably acted by their tonic qualities, as substitutes for labor and exercise.

"A PLENTIFUL AND REGULAR PERSPIRATION, excited by means of a flannel shirt, worn next to the skin, or by means of a stove room, or by a warm climate, has, in many instances, prolonged life in con-

sumptive habits; but all those remedies have acted as palliatives only, and thereby have enabled the consumptive patients to enjoy the more beneficial effects of exercise.

"BLISTERS, SETONS, AND ISSUES, by determining the perspirable matter from the lungs to the surface of the body, lessen pain and cough, and thereby prepare the system for the more salutary effects of exercise.

"The effects of SWINGING, upon the pulse and respiration, leave no room to doubt of its being a tonic remedy, and, therefore, a safe and agreeable substitute for exercise."

Again, the same eminent man says:—

"I now come to treat of the RADICAL REMEDIES FOR PULMONARY CONSUMPTION.

"In a preceding inquiry, I mentioned the effects of labor, and the hardships of a camp or naval life, upon this disease. As there must frequently occur such objections to each of these remedies as to forbid their being recommended, or adopted, it will be necessary to seek substitutes for them in the different species of exercise. There are active, passive, and mixed. The

active includes walking, and the exercise of the hands and feet, in working or dancing. The passive includes rocking in a cradle, swinging, sailing, and riding in carriages. The mixed is confined chiefly to riding on horseback.

"I have mentioned all the different species of exercise, not because I think they all belong to the class of radical remedies for consumption, but because it is often necessary to use those which are passive before we recommend those of a mixed or active nature. That physician does not err more, who advises a patient to take physic, without specifying its quantities and doses, than the physician who advises a patient in a consumption to use exercise, without specifying its species and degrees. From the neglect of this direction, we often find consumptive patients injured instead of being relieved, by exercise, which, if used with judgment, might have been attended with the happiest effects.

"I have before suggested, that the stimulus of every medicine which is intended to excite action in the system, should always be in exact ratio to its excitability. The same rule should be applied to the stimulus of exercise. I have heard a well attested case of a young lady, upon whose consumption the first salutary impression was made by rocking her in a cradle; and I know another case, in the lowest state of that debility

which precedes an affection of the lungs, was prepared for the use of the mixed and active exercises, by being first moved gently backward and forward in a chariot, without horses, for an hour every day. Swinging appears to act in the same gentle manner. In the case of a gardener, who was far advanced in consumption, in the Pennsylvania Hospital, I had the pleasure of observing its good effects in an eminent degree.

"In cases of extreme debility, the following order should be recommend in the use of the different species of exercise:—

"1. Rocking in a cradle, or riding on an elastic board, commonly called a chamber horse.

"2. Swinging.

"3. Sailing.

"4. Riding in a carriage.

"5. Walking.

"6. Running and dancing.

"In the use of each of these species of exercise, great attention should be paid to the degree or force of action with which they are applied to the body. For example, in riding in a carriage, the exercise will be less in a four-wheel carriage than in a single horse chair; and less when the horses move in a walking than a trotting gait. In riding on horseback, the ex-

ercise will be less or greater, according as the horse walks, paces, canters, or trots.

"The more the arms are used in exercise the better. One of the proprietary governors of Pennsylvania, who labored for many years under a consumptive diathesis, derived great benefit from frequently rowing himself in a small boat, a few miles, up and down the river Schuylkill. Two young men, who were predisposed to a consumption, were perfectly cured by working steadily at a printing press in this city. A French physician, in Martinique, cured this disease by simply rubbing the arms between the shoulders and the elbows until they were inflamed. The remedy is strongly recommended, by the recoveries from consumption which have followed abscesses in the armpits. Perhaps the superior advantages of riding on horseback in this disease, may arise, in part, from the constant and gentle use of the arms in the management of the bridle or whip."

* * * * * *

I have given two or three cases of the remarkable results of exercise in consumption, reported by Dr. Rush. His writings are prolific of these reports, but I have given, in the paragraphs already submitted, his conclusions, which, from such a man, always include the underlying facts.

Special Exercises Needed for Consumptives. — Consumptives are advised to ride on horseback, to make long journeys in the saddle. This is doubtless one of the most valuable exercises. There are numerous well-authenticated instances of cures by its means, even in the advanced stages of the disease. But many persons cannot avail themselves of its advantages. In our cities, not one phthisical invalid in ten, especially among women, can command facilities for daily horse-back riding, still less can they take long journeys.

Hunting, fishing, and mountain air are advised. But how can many who reside in towns and cities, and who most need muscular training, secure such recreations?

Walking is very generally prescribed, and is doubtless the most available of the exercises named. But in the case of women, the present mode of dress seriously interferes with the ease and physiological benefits of this exercise; and few would exchange the long skirt for the short one with pantalets or Turkish trousers. And yet this change is indispensable to the best results.

While I would encourage all out-door exercises and amusements, particularly walking, horse-back riding, fishing, hunting, gardening, the ball, games, &c., &c., is it not evident that a series of exercises

which can be introduced into every house, which may be practiced at all seasons, and in all kinds of weather, by persons of both sexes, all ages and degrees of strength, and which possess such peculiar fascinations as to make them permanently attractive, are greatly to be desired, to meet wants which cannot be otherwise supplied?

Many exercises have been advised with reference to general health and strength. I submit a series possessing peculiar virtues for the consumptive. To him all exercises are not equally profitable. Ten movements of a sort adapted to his special needs are worth a hundred not so adapted. He has a narrow chest and drooping shoulders. This distortion results in displacement of the lungs. And yet he may have legs and hips comparatively vigorous. Ten movements concentrated upon those muscles whose deficiency permits the drooping of the shoulders will be more valuable than a hundred for the legs. There are several hundred muscles in the human body. In every case of consumption certain groups of these muscles are defective. Restoration of the lost symmetry calls for those exercises which will develope the defective groups. Prescribing a walk for a patient whose legs are already vigorous, but whose arms and shoulders are contracted and weak, is like prescribing a medicine

because it is a *medicine*, without regard to the nature of the malady.

A blister applied to the chest relieves pain within. It accomplishes this by drawing the blood to the surface, and thus subtracting from the congestion at the point of disease. If the blister were applied to the foot or leg, it would not sensibly relieve the congestion in the chest.

If, instead of applying a blister, we use exercise as the remedial measure, and by drawing blood into the muscles we would relieve the congestion within, the importance of subtracting from the vessels which bear the blood to the diseased part is not less than in the case of the blister. For the relief or cure of disease in any of the chest organs, a few well-directed movements of those muscles about the chest which lack circulation will accomplish more than hours of walking.

The intelligent physician, in prescribing muscular training, will not say, simply and generally, "I advise you to exercise," but he will indicate the particular exercises applicable to the case. He will first thoughtfully ask, "What group of muscles is defective?" When he has answered this question accurately, he is prepared for a second,—"What exercises will bring into direct training the defective group?" When these points are settled, he can direct the train-

ing wisely. To recommend horseback-riding—good as it is—for *all* consumptives, is not a whit more discriminating than to prescribe a particular variety of food for all invalids. The medical man who has a general formula for a certain class of patients is hardly more thoughtful than the vender of the "all-healing ointment."

Little or no attention has been given to the vital subject of exercise as a curative means. In many cases treated by Ling's methods, when skilfully applied, the results have been so marvellous that medical men who have not studied the philosophy of the Movement Cure have attributed the rapid improvement to Animal Magnetism. They could not conceive that muscular exercise alone could produce such wonderful results.

Symmetry of body and mind is vital to health. Its loss in the mind leads not unfrequently to insanity,—its loss in the body to numberless maladies. The great defect in our system of education lies just here. There is no discrimination between the members of a class, part of which needs one kind of culture to produce symmetry and health, while another part needs quite another. The gymnasium, where all perform the same exercises, may be charged with the same radical defect. In a school for thorough mental or physical training, pupils must be classified and trained with

reference to their individual needs. This principle underlies the successful treatment of consumption. He who would contribute to its cure by exercise—the most efficient of all possible remedies—must not say to his patients simply, "Exercise, exercise, exercise," but he must distinctly mark out those exercises which are precisely adapted to the case of each.

As an additional reason for discrimination in prescribing physical exercises for consumptives, it may be mentioned that in almost every patient belonging to this class there are complications with other diseases each of which requires consideration.

PERCUSSION.

In consumption, there is generally feeble circulation in the muscles and other soft parts, which cover the bony frame-work of the thorax.

To draw the blood from the congested lung to the surface, we apply blisters and irritating ointments to the surface. But, under a better dispensation, we employ exercise to accomplish the same result. There is too much blood within; this congestion is an essential

feature of the malady. To cure or relieve the sufferer, we direct him to exercise the muscles without, and thus, by giving them an increased quantity of blood, we relieve the diseased organs within, of their burden. As before remarked, the primary and principal object of all exercise is equilibrium in the circulation. Beside blisters and other similar irritants, we seek this equilibrium in the use of many means.

Of all these means, exercise is the most important and available.

As *active* exercises are not always practicable, or, at least, to the necessary extent, we frequently resort to *mixed* exercises, or those in which the invalid is assisted by another person; or, again, to the *passive*, in which the patient passively submits to the manipulations of the assistant.

Of all the passive exercises, *Percussion* is the most important. It is generally practiced with the open hands. This slapping seems, when performed by an adept, a very simple art, but is really quite difficult. The motion should be one of the wrists, or, rather, the wrist should be *lax*, while the hand should be so managed that it will completely fit every inequality of the person of the patient. The hands are struck in alternation, and the motion may be a rapid one. Every beginner strikes too hard. The blows should not be painful to the patient.

This percussion may be practised for almost any malady. It is invaluable in paralysis, for nearly all diseases of the spine, for dyspepsia, torpid liver, constipation, and for consumption.

In the use of percussion for diseases of the organs of the chest, it is not necessary, nor always advisable, to apply the percussion upon the chest. If the extremities lack circulation, and the respiration of the patient be such that he cannot exercise his limbs actively, the assistant may percuss them with great profit. I often have a phthisical patient whose extremities are cold, percussed in various ways upon these parts, a half hour. This, of course, is done while the patient is recumbent, and while his limbs are supported in such a manner as to make the percussion most agreeable. The blows should not be long continued in one place, at one time, but the patient should be turned from lying on his back to lying on his face, and again to either side.

When the patient can bear this treatment directly upon the chest, it will prove most effective. It is most valuable when applied upon the back part of the chest, across and about the shoulder-blades. If the spine be tender, it should be avoided. Next, it is most valuable when applied to the sides, the patient raising the arm of the exposed side over his head. Upon the

front of the chest, the blows may be given to every part except the female breast.

I need scarcely say that, in this exercise, it is best the patient should lie down, and have the head and shoulders in a comfortable position. The blows are to be so light that they will produce neither cough nor pain. The exercise may be continued as long as it is agreeable to the patient.

In the School which we shall open in Boston next fall, for the Physical, Mental, and Moral Training of Girls and Boys, we shall divide the pupils into classes for the physical department, gathering those who have defective chests in one class, for such special exercises as are adapted to their wants.

Fig. 1.

One of these exercises, and an important one, will be percussion. As applied to the chest, I will give a few illustrations, which may suggest the uses of percussion when performed in classes.

When divided into couples, the boys by themselves and the girls by themselves—though I see the artist has placed a boy and a girl together—at the word, each couple will, in alternation, percuss each other, as shown in *Fig.* 1.

After two or three minutes devoted to this mode, they will, at the word of command, change to that shown in *Fig.* 2. Then in order to *Figs.* 3, 4, and 5.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

I need hardly remind the intelligent reader, that Dr. Halsted and other physicians acquired, at one time, a wide-spread fame for the cure of dyspepsia. Each of these famous doctors pledged his patients to secrecy. But, as usual in such cases, the secret escaped, and it turned out to be *percussion of the abdomen*. I know a grave clergyman who went to one of these doctors, to be treated for a severe dyspepsia. He was taken through one room, down a flight of stairs, through a long hall, up another flight of stairs, turned about, down, up, around, and through, until a small, mysterious garret room was reached, in which he made a solemn promise never to reveal the secret; and I be-

lieve he never broke his promise, though this much of the trickery he did reveal to me. But another patient did leak so badly that we found out the whole secret. Do you ask what was the result of the treatment of these percussion doctors? I reply, so far as I know, or heard, it was most happy. Their patients were all cured or greatly improved.

Percussion is invaluable for those invalids who are not strong enough to engage in active exercises; and I may add, that I have practiced it upon vigorous people, over some affected organ, with great satisfaction and profit to the patient.

APPARATUS FOR THE SPECIAL EXERCISES.

I advise some exercises which require peculiar apparatus. But, with the exception of the spirometer, you can make it yourself, or get some mechanic in your neighborhood to make it for you.

I could prescribe such exercises as would require no special apparatus, but they are greatly inferior to those I have advised.

When the doctor directs a mixture for you, he does

not confine himself to such ingredients as you have in your house, but he selects what he believes to be best; and it generally happens that you have to visit the apothecary's.

In prescribing exercise for the prevention or cure of chest affections, I advise those which I have found from a long experience, to be best for persons who would exercise at home.

Suppose the cost of the articles is twenty dollars! What is this for health and strength of your chest? You will give five times that sum for the doctor's drugs, in one sickness, and receive, perchance, nothing but a sore mouth and aching bones.

I advise you not to engage in this business in a half-way style, but obtain the apparatus complete, and set about it in a manner as earnest as if you were expecting to make a thousand dollars.

It is not like investing money in some new patent medicine. That is but a doubtful experiment at best. But *exercise*, *you know*, will strengthen and develope the chest organs. It surely is not necessary for a doctor to tell you that exercise will make your body grow. And if you follow my direction, "not to exercise to fatigue," there can be no mistake about a favorable result.

THE SPIROMETER.

This is a direct and effective means of enlarging and strengthening the pulmonary apparatus. The lungs are drawn as full as possible, when the lips are applied to the instrument, and you blow. Suppose you blow into the instrument with a force equal to sixty ounces on a square inch—and this is not unusual—it will be seen that the same force must reach every inch of the lungs. The result is, that the air is forced into every air cell.

By false position, improper dress, or lack of exercise, a large proportion of the millions of air cells are closed. Disease of the lungs often begins with this closing of the cells. If they are kept open, and the air circulates through every part, it is hardly possible to concieve of the establishment of disease.

In using this Spirometer, the air is not allowed to escape from the lungs; not two per cent. of a chest full, can be crowded into the minute reservoir of the instrument. The air is retained in the chest, and the entire muscular strength is employed to force it into the Spirometer, and, at the same time—of course with precisely the same power — into every part of the lungs.

In my long and varied experience as a teacher of Gymnastics, I have seen no means employed which so rapidly enlarges and invigorates the chest. I advise every person with weak voice or defective respiration, to employ a Spirometer regularly. I have witnessed many singularly happy results from its use in contracted chests. As will be readily inferred, in no exercise are the walls of the chest so forced outward in all directions, and in no other exercise are the muscles concerned in respiration brought so directly and vigorously into play.

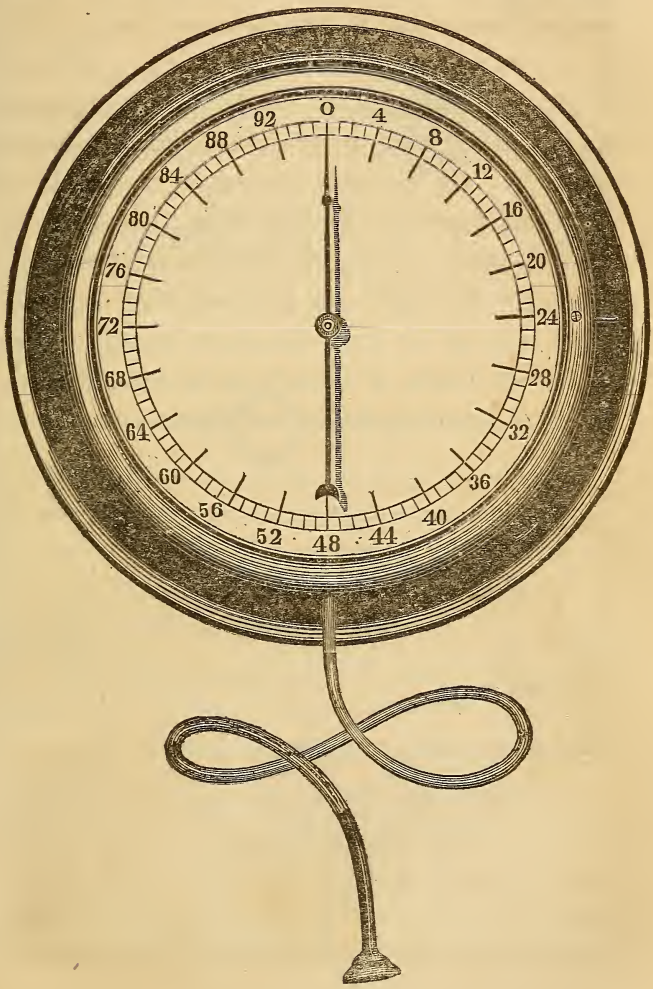
President Felton, of Harvard, nearly two years ago, wrote me a letter about this Spirometer, after he had used it a few months, which letter I published at the time. Among other statements it contained the following:—

"I have found that my respiration is freer for the whole day, after practicing a few minutes with this Spirometer."

The instrument is little more than a foot from side to side, and four inches deep from front to back, with bronzed case, and not in the least liable to get out of repair. With it there are sent full instructions for its use.

It is a beautiful parlor ornament, and a source of

much amusement to one's self and friends. This is not the only means by which the same result may be

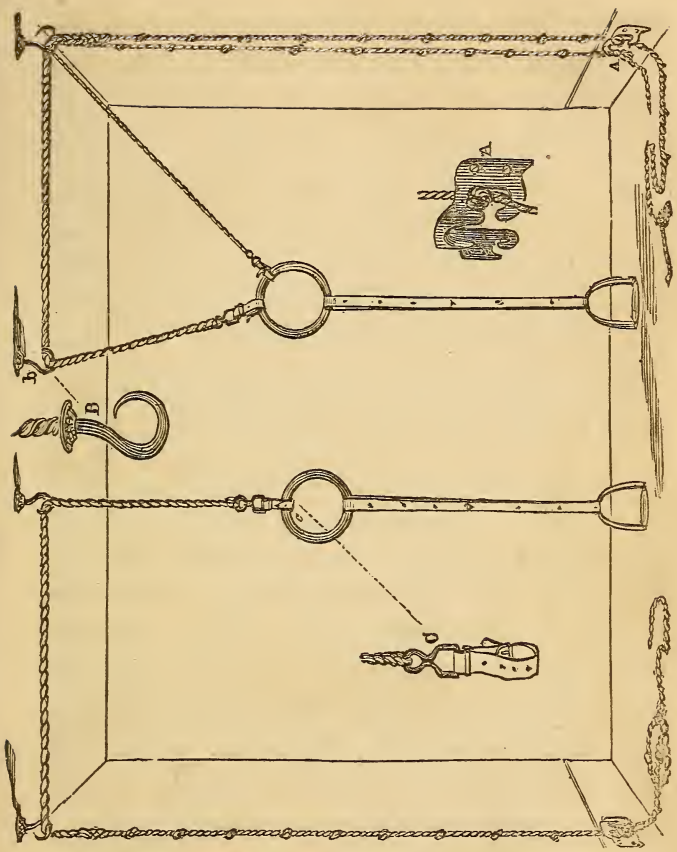


reached. Any ingenious mechanic can devise at once some simple contrivance, into which you can blow hard without the air escaping from your lungs.

The Pangymnastikon. The late Prof. Schreber fully sustained his claim to be regarded as the most philosophic and ingenious of modern teachers of the gymnastic art. His complete work illustrating the Pangymnastikon is the most remarkable of his productions. The work has been translated and published with all of Prof. Schreber's illustrative cuts, by Dr. Dio Lewis, of whom it can be obtained for the benefit of those who do not read German.

It can be put up in any parlor or sitting-room, and removed in a minute, leaving nothing to mar the appearance of the apartment. A hall, five or six feet wide, will give room for every feat. But the room may be twenty or thirty feet wide, and the height of the ceiling may be from eight to sixteen feet. On ship-board, where it may be used in the roughest weather, it serves an excellent purpose.

The variety of exercises is something wonderful. All the bars, ladders, swings, &c., of the ordinary gymnasium, will not give half of the variety of exercises which is found in this single and simple piece of apparatus. It is justly esteemed as the most remark-



able invention in the whole field of physical culture. It is adapted to persons of all ages, and both sexes.

DESCRIPTION OF THE PANGYMNASTIKON. Four hooks are screwed into one and the same joist. (One

is seen at b.) The two hooks over the hand-rings should be eighteen inches apart, and the other two as near the side wall as convenient. Each should go into the joist at least six inches, with a very coarse thread. The rosette seen in B, used with each hook and armed with three strong screws, keeps the hook in place if it is disposed to get loose in the joist. The rosette likewise gives a handsome finish to the hooks, which otherwise might show a fracture in the plastering.

The hand-rings of iron, and covered with leather, will be readily understood. They are suspended by two ropes, which, it will be seen, pass over the hooks in the ceiling. These ropes are connected with the hand-rings by a strong cock-eye and strap, seen at C. With the buckle in the strap the height of the hand-ring can be altered two inches in half-inch distances, which is an important feature. It will be observed that the large ropes which support the hand-rings, after passing through the hooks, are spliced into smaller ropes, which have knots at intervals of eight inches. These knotted ropes pass through "holders," which are fastened to the mop-boards with screws. The "holder" is seen at A.

The height of the hand-ring is altered at pleasure by this knotted rope. By a simple motion of the hand, the knotted rope is drawn through the "hold

er" in either direction six or eight feet, and thus the hand-rings are allowed to fall within a foot of the floor, or drawn up out of reach. This contrivance is entirely a new thing, and perfectly satisfactory.

One hand-ring, it will be observed, has an extra rope. One belongs to each ring. These ropes, which are designed to hold the hand-rings apart, are likewise knotted, and pass through the same "holders," which have two notches for this purpose.

The straps and stirrups are very strong, and the length of the strap is changed by a brass H, in a quick and secure manner.

The ropes are of the longest fibred manilla, and handsomely spliced. The short straps, of which there are four, one to connect each rope with the hand-ring, are all of strong, good leather; the hardware is japanned, and each piece furnished with its appropriate screws. Four large diagrams on map paper, each eighteen by twenty-nine inches, presenting one hundred and seven cuts, illustrating the exercises, to be hung up on the wall, so that with a single glance of the eye the order can be learned. The whole is boxed for shipment, at this office, for ten dollars. Address Dr. Dio Lewis, Box 12, Boston Post Office.

The height of the ceiling and the width of the room must be sent.

As intimated before, whoever would make this ap-

paratus for himself, can easily do so, substituting for the iron "holders" small wooden pins, which should be placed near enough together to catch the knots in the ropes.

Dumb Bells. The dumb bell may be of any hard wood, the balls four inches in diameter for men, three inches for women, and less for small children. The handle should, in length, equal the diameter of the ball, and have, in the middle, a slight swell. The ordinary iron dumb bell is of good shape.

Clubs. The club should be made of some hard wood. For men it may be twenty inches long and three or four inches in diameter, with an easy handle. For women and children it may be sixteen inches long, and two or three inches in diameter. In turning the handle for women or children, the mechanic must be remined that their hands are small.

The Rings. The ring should be of cherry, black walnut, or mahogany, six inches from outside to outside, and one inch in diameter. It should be polished very smooth in the lathe with shellac.

Wands. The wand (a round stick) should be from three to four feet in length, one inch in diameter,

and polished very smooth. The ends should be rounded.

Bean Bags. These may be made of strong ticking, and when finished, should be from eight to ten inches in diameter, and three-fourths filled with beans.

If any person with weak lungs shall seek guidance in this book, and does not choose to obtain all or any of the apparatus advised, he can use those exercises which do not require apparatus,—and multiply them to such an extent as to meet the demands of his muscular system. But the variety and arrangement here presented is greatly better.

Time for Exercise. The best time for the special exercises, advised in this work, is in the middle of the forenoon; or (when there is considerable strength) early in the morning; and, unless there be fatigue, the next best time is from seven to eight o'clock in the evening. Work with the windows of your room wide open, and, if it be in the day-time, where the sun shines upon you.

It must not be forgotten that the patient should stop before he is fatigued. *It is advised that on the first and second day of each week, the new exercises for that week, should be performed half the number of*

times indicated, and with much less force than will be admissible after two or three days. This advice is of the utmost importance in those cases where hemorrhage has recently occurred.

You must be careful not to hurry yourself with the performance of the exercises. If necessary, give a full hour or more to the work, resting after each exercise till you feel quite fresh and ready for the next.

The health-seeker must, in the execution of all exercises (when it is possible) stand erect, with head and shoulders drawn far back. This is a very important direction for those with weak chests, with the usual drooping shoulders.

The spirometer should always be used before beginning the exercises. Its use opens all the air cells, and fully prepares the lungs for those deep inspirations, which are so important to the most profitable muscular training. The same result may be reached to a considerable extent by filling the lungs as full as possible, and blowing, holding the hand over the mouth so that no air can escape.

I may remark again, that in using the spirometer, the exerciser should not blow as hard as he can, but as in other exercises, he should go gently, increasing the effort after considerable practice.

This advice is equally applicable to the exercises with other pieces of apparatus, or in the use of those

which require no apparatus. Begin at first very gently, and increase only after experience proves that the work does not make you sore, or fatigue you.

In many of the exercises, you have one or two assistants. These should be gentle and patient persons. Those rough people who begin at once to try their strength against yours, often do a great deal of harm. Your servant, if you have one, will generally prove the best assistant. He or she does not feel at liberty to wrestle with you, but will quietly follow your instructions.

As soon as your exercises are finished, you must dress yourself warmly, and lie down for an hour or two, to sleep, if possible. This will double the good effects of the exercise. Any hurry or flurry about the patient is unfavorable. Let all be done in quietness and cheerfulness.

The exercises which I advise in this work for invalids with weak chests, are not the same which are employed for this class of patients, in my Movement Cure. But they are very good substitutes, and will almost invariably satisfy the health-seeker. Those I submit in this book have been used by numberless patients out of the institution with excellent results.

I should give in full the exercises employed here, but for the fact that I use a good deal of apparatus which no one would procure for home use, and as the

work is designed for non-professional use, it is desirable to advise such means as are available to the million.

But even with this desire on my part, I am obliged to advise a few pieces of apparatus, to obtain which you can send here, or make the substitutes described in each case.

Some of the cuts which appear in this work I have used in another work, already before the public. But when the physician gives you a new mixture, you do not demand that each ingredient shall be one which he has never employed before. Perchance he has given you the same medicines many times. He now makes a new compound.

So a part of those exercises have appeared in a former work. I now use them in a new compound, and for a special purpose. I am indebted to Friedrich Robert Nitzsche for the designs of many cuts.

To My Patient, or Pupil. — You have a weak chest, or perhaps you are now in incipient consumption. I will prescribe for you. The prescription may not be the best possible one for your particular condition, but it will certainly do you good. If you were now before me, and I could know all the peculiar features of your case, I might alter this prescription. But it may be you are far away, and I cannot see you. But there are certain facts in your case which I may

assume to know. You have abandoned the use of medicines, and now you are seeking in this book some more effective and natural means of cure. You are not a common, ignorant person. If you were, you would continue to place your hopes in advertised patent medicines. You have resolved to think and act for yourself. Besides, you share the common opinion that diseases of the chest-organs are most successfully treated by exercise and other hygienic agencies.

I have an advantage over the *medicine* doctor. When he gives you a drug, it *may* be the very one which of all the materia medica would most injure you. Medicine is a dangerous tool, and may cut the wrong way.

But not so with the means I shall prescribe. You ask, "May not exercise prove injurious in some cases?" Yes, *some* exercises may; but not such as I shall advise.

Spending hours in the warmest season out in the intense rays of the sun might prove injurious, but a moderate exposure to the life-giving sunshine is good for all invalids. I could prescribe a certain amount of this agency for all persons with weak chests, without danger of going wrong.

A gale of wind might injure some persons with weak lungs, but a certain amount of fresh air is of the utmost

importance to all invalids of this class. In prescribing it I should be sure of going right.

So there are extreme exercises which might injure some consumptives. But there are certain gentle and special ones which may be used by all persons with weak lungs, without the slightest apprehension of injury. I know that the simplest exercises may be abused. Walking, even, simple as it is, may be so badly managed as to prove injurious. But if you will be guided by the plain instructions of this book, you shall make no mistakes.

Gymnastic Dress. The accompanying cuts show the dress which we have adopted for the Gymnasium and Movement Cure. I observe the artist has given the female dress a hoop, which we do not use. For both sexes we make the dress of flannel, which for all seasons we find most available.

In exercises upon the Pangymnastikon a dress without a skirt has been adopted. It is greatly liked, and certainly offers a most profitable freedom. It can be put on and thrown off in a moment, and if used quite in private is not only admissible, but adds not a little to the convenience and success of the exercises upon the Pangymnastikon.

Female Dress for Pangymnasticon.

Male and Female Dress for Exercises in Gymnasium and Movement Cure.

In all the exercises with *dumb-bells*, *rings*, *wands*, *and clubs*, *music* will assist you. With every motion of the body and arms, you keep time as in dancing. It adds greatly to the interest, and delays fatigue.

SPECIAL EXERCISES FOR PERSONS WITH WEAK CHESTS.

FIRST WEEK.

All of these exercises are to be executed every day of the week.

As before estimated the *Spirometer* should be used always before you begin your regular exercise. Or if you have no spirometer you may take five deep breaths. And you should use the spirometer or the deep breathing several times a day beside. Whatever enlarges your chest, will, by admitting more air, increase your vitality, and tend to remove any general or local weakness.

Do not forget the daily walk in the open air. Make it as long as possible without fatigue. Under the

proper heading this subject is fully discussed. Whoever undertakes the use of this book, is advised to read it all. Every chapter contains something important to you.

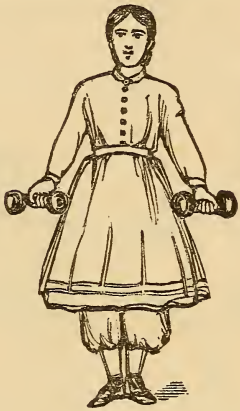


Figure 1.

No. 1. Hold the dumb bells as in *Fig.* 1. Thumbs outward. Bells *exactly horizontal*. Turn the thumb ends of the bells to the hips, and then back again to the position shown in the figure. *Repeat* 10 *times*. Let the change be made with the greatest accuracy. When it is well done, no matter which end is at the hip, a straight rod run through one dumb-bell, lengthwise, would at the same time run through the centre of the other.

In this and all subsequent dumb-bell exercises, the pupil must be careful not to bend the elbows. When

exceptions to this rule occur, they will be plainly indicated.

No. 2. Position seen in *Fig.* 2. Keep the elbows pressed against the sides, and twist the bells so that the ends are exactly reversed. Be sure they are exactly in line with each other, and the forearms parallel. *Repeat* 10 *times.*

Figure 2.

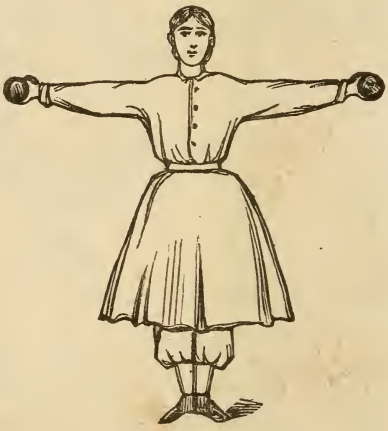


Figure 3.

No. 3. In passing from No. 2 to No. 3, bring the bells to the chest, and on the next beat to the position in *Fig.* 3. The palms of the hands are upward. Bells exactly horizontal and parallel to each other. Turn the hands over, knuckles upward. Bells now exactly in the same position as before. *Repeat* 10 *times.*

No. 4. In passing from No. 3 to No. 4, bring the bells to the chest, and on the next beat to the position in *Fig.* 4. The palms forward. Twist the bells so the knuckles are forward. *Repeat* 10 *times.* Arms to be kept parallel from first to last.

Figure 4.

Figure 5.

No. 5. Position as in *Fig.* 5. In passing from No. 4 to No. 5, bring the bells to the chest. Twist the arms so that the bells are exactly reversed.

It will be seen in the figure, the palms are upward. When the bells are reversed, the knuckles are upward. Keep the arms parallel. *Repeat* 10 *times.*

In passing from one exercise to another, I have spoken of bringing the bells to the chest. They should

strike the chest exactly at the point shown in *Fig.* 6.

Figure 6.

No. 6. Thrust the two bells down by the side of the legs. Bring to the chest, and thrust them sideways. Bring to the chest, and thrust them upward. Bring to the chest, and thrust them forward.

Repeat these four thrusts 3 *times.*

When the down thrust is made, the pupil must be careful that at the lowest point the bells are precisely horizontal, and parallel to each other. When the side thrust is made, the arms must be horizontal, the bells perpendicular and parallel to each other. When the upward thrust is made the arms must be accurately perpendicular, bells parallel and horizontal.

When the forward thrust is executed the arms must

be exactly horizontal, and the bells perpendicular and parallel.

I speak frequently of *precision*. This will *greatly increase* the interest, and is always better in a physiological point of view.

No. 7. Raise the right hand bell from the side of the leg into the arm-pit, 3 times. (*Fig.* 7.) Left, 3 times. Alternately and simultaneously, 3 times.

Be sure that each time when the bells come into the arm-pits they are exactly horizontal.

Fig. 7.

No. 8. Passing from No. 7 to No. 8, bring the bells to the chest; on the next beat to the top of the shoulders; on the next beat carry up the right, reach-

ing accurately as high as you can reach. *Repeat* 3 *times*. Left, the same. Alternately and simultaneously, each 3 times.

No. 9. Passing from No. 8 to No. 9, bring the bells to the chest, (the dotted lines in *Fig.* 8 show it) then down by the sides, in all, as usual, keeping good

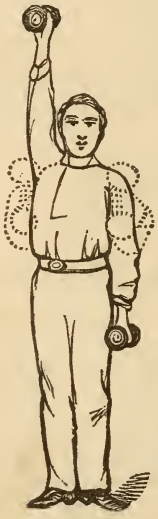


Figure 8.

time to the music. Now carry the right bell to the chest, then up, reaching the position shown in *Fig.* 8. Return to the hip, marking one beat on the chest in going down. *Repeat* 5 *times*. Left, the same. Alternately and simultaneously, 5 times.

No. 10. Bring the bells to the chest. Strike out the right one in front, arm precisely horizontal, bell perpendicular. (*Fig.* 9.) *Repeat* 5 *times.* Left, the same. Alternately and simultaneously, 5 times.

As usual, keep the chest well forward, and the shoulders drawn far back.

Figure 9.

Figure 10.

No. 11. Holding the bells in the position seen in *Fig.* 10, bring them with *force* into the position seen in the dotted line, 5 times. In beginning this elbow thrust backward, it is well to first raise the bells a foot, that they may be brought back with more force, and more directly into the position seen in the dotted lines. But in carrying them forward again, it should be first into the position seen in the figure.

No. 12. Lie down and have your assistant percuss you, with the flats of his hands, upon every part of the body and limbs, five minutes.

SECOND WEEK.

It is well to rest one day of each week; so, passing Sunday, you begin on Monday morning with the *wand*.

It will be remembered without another repetition, that all the exercises given for a "week," are to be performed every day of the week, except Sunday.

No. 1. Divide the wand into three equal parts with the hands, and hold it as represented in *Fig.* 1. Thrust it downward close by the legs with much force, and again bring it to the chin, holding the elbows high as seen in the figure, and so continue 5 times.

No. 2. From the position seen in *Fig.* 1, carry the wand directly upward as high as you can reach, and back to the chin, 3 times.

No. 3. From the highest position in No. 2, bring the wand down to the knees and back again, 5 times *without bending the elbows*.

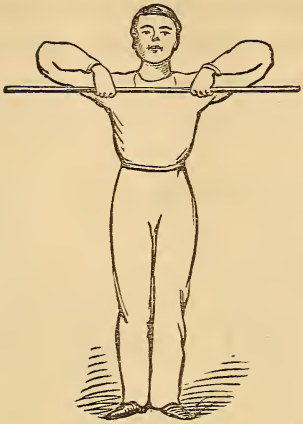


Figure 1.

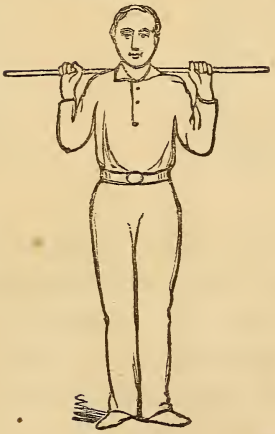


Figure 2.

No. 4. Holding the wand high over the head, bring it down on the back of the neck 5 times, as seen in *Fig.* 2.

No. 5. Hands over the head, but this time at the ends of the wand, as seen in *Fig.* 3, and now bring it down behind as seen in *Fig.* 4, 5 times, *being very careful not to bend the elbows.*

Figure 3.

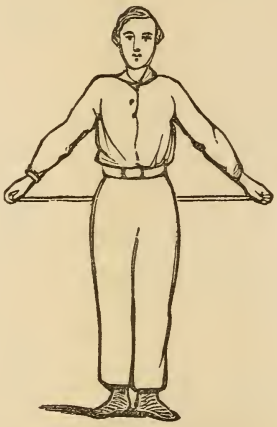


Figure 4.

No. 6. Hold the wand directly over the head, as in *Fig.* 3, hands grasping the ends, and carry it from side to side 3 times, on either side, (*Fig.* 5) being very careful not to bend the elbows, and yet the wand must come to the perpendicular on either side.

No 7. Standing erect; heels together; put the wand out with your right hand midway between two lines, one of which runs directly forward, and the other at right angles with this, at your side; which

direction we shall call diagonally forward. Let the wand rest on the floor, at a point as far removed from your feet as possible, keeping your body and the wand perpendicular, and the arm horizontal. The

Figure 5.

Figure 6.

elbow must not be bent. Step out as seen in *Fig.* 6, the foot passing behind the wand, as seen in the figure. In doing this you must not bend the elbow, nor must you move the wand. It will be seen that the shoulders scarcely move, the motion being confined to the legs and lower part of the body. Charge thus 5 times. Same with the left arm and leg.

No. 8. Standing upright, with the wand held horizontal behind, charge out with the right foot, then

with the left, and so on alternately, 5 times in each direction. The exercise is well shown in *Fig.* 7.

Figure 7.

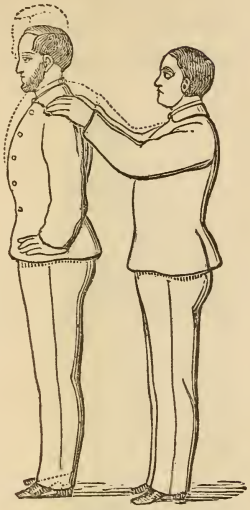


Figure 8.

No. 9. Your assistant puts his hands upon your shoulders, and resists hard; you rise to the toes, as shown in the dotted lines, (*Fig.* 8,) 10 times.

No. 10. Place your hands upon your sides with your elbows in the position seen in *Fig.* 9. Your assistant seizes your elbows. Now you draw your elbows toward each other behind, 5 times; your assistant resists. He draws them together 5 times, and you resist. This must be done gently.

No. 11. Hold your arms by the side as shown in

Figure 9.

Fig. 10. Your assistant grasps the outside of the

Fig. 10.

elbows. Carry your arms up as in the dotted lines, 5 times; assistant resists.

No. 12. Have your entire person, including your limbs, gently percussed during five or six minutes, always with your assistant's flat hands.

THIRD WEEK.

The "*ring*," it will be remembered, is a simple wooden ring, turned by any wood-turner. If a round bar of iron, an inch in diameter, were made into a ring which should be six inches across, from outside to outside, it would be in form and size exactly like the wooden gymnastic ring. If polished in the lathe very smooth, with shellac, it will never hurt the hand. The exercises with the gymnastic ring are exceedingly valuable.

No. 1. Standing in the position represented in *Fig.* 1, the end of the right toe against the right toe of your partner; pull hard, and twist the right arm hard from right to left, and left to right 10 times, keeping time to the music.

Be careful in this, as in all other exercises with the

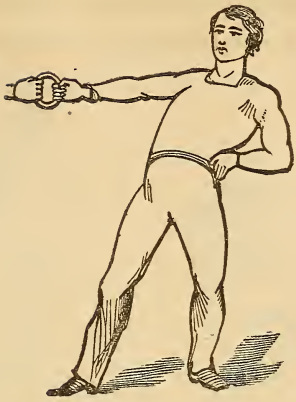


Fig. 1.

ring, to draw the shoulders well back and keep the head erect. Same with the left hand and foot.

No. 2. Join both hands with two rings, and place the right toe against your partner's right toe, as in No. 1, being sure to keep the foot which is behind, at right angles with the one in front, (which I may say here, is to be looked after with much care through this whole series, whenever it is possible,) then pull hard, and twist the arms 5 times, keeping time to the music. Same, with left foot forward.

No. 3. Without letting go the rings, turn back to back, place the outside of your left foot against the same of your partner, in the same way you would push

against the wall of the room, and pulling hard in the position represented in *Fig.* 2, twist hard 5 times, keeping time to the music. Change your feet, and repeat.

Figure 2.

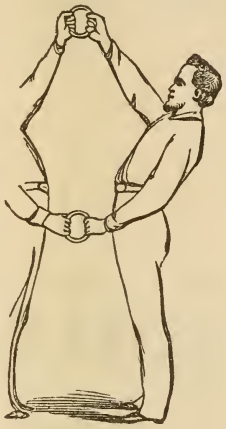


Figure 3.

No. 4. Standing, as shown in *Fig.* 3, about two feet from your partner, place the rings in the position shown. Now as the arms on one side rise, the arms on the other side fall, keeping time to the music. Be careful not to bend the arms at the elbows, which of course can be prevented in this as in many other exercises, by carrying the hands outward at the side. In this exercise some force may be used, so that when the ring is carried up, it goes far beyond the perpendicular line, the bodies of the players bending freely.

The arms may go up on either side 10 times. And last, the arms may all go up simultaneously.

Figure 4.

Figure 5.

No. 5. Back to back, as seen in *Fig.* 4; thrust the rings up with force, each player keeping his two arms exactly parallel; 5 times.

No. 6. From the same position, seen in *Fig.* 4, thrust the rings out sidewise 5 times.

No. 7. Take the position seen in *Fig.* 5; your partner the same. The inside of your left foot to the inside of his left. Draw your left hand as far back past your left side as possible, dragging your partner's right hand after it. At the same time he has done the

same thing with his left. Do the same with your right hands. And so continue to alternate. Do this gently 10 times.

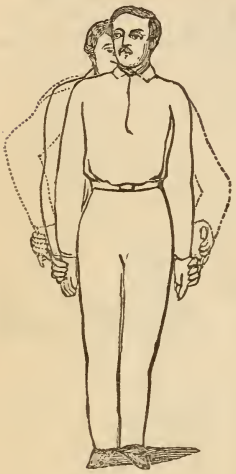


Figure 6.

Figure 7.

No. 8. Assistant, standing behind the patient, grasps his hands. (*Fig.* 6.) Patient draws up the hands, as shown in the dotted lines, assistant resisting. Patient forces his hands back again to the first position, assistant resisting. Repeat 5 times.

No. 9. Assistant, standing behind the patient, who is seated, grasps his uplifted hands. Patient draws down the hands, as shown by the dotted lines, assistant resisting. Patient forces the hands back to

the first position, assistant resisting. Repeat 3 times. (*Fig.* 7.)

No. 10. You thrust your right arm out at the side; your assistant seizes by the wrist and shoulder. You flex the forearm, keeping the elbow downward, as shown in the dotted lines. Assistant resists, you push out again; he resists. Repeat 5 times. (*Fig.* 8.)

Figure 8.

No. 11. Hold your arms in front, horizontal, hands touching. Assistant stands behind you, and places his hands upon the outside of your arms, near the wrists.

Now carry your arms backward in the horizontal plane, without bending the elbows, until they are as far back

Fig. 9.

as you can carry them, your assistant resisting. Repeat 5 times. (*Fig.* 9.)

No. 12. Sitting on a stool and bending forward, your assistant standing behind you and placing his open hands upon the back of your shoulders, you raise your-

self to the perpendicular; assistant resisting. Repeat 5 times. (*Fig.* 10.)

Figure 10.

Lie down and have your assistant percuss your entire person, including legs and arms. This week it may be done 10 minutes, and the blows may be much harder. Let the blows during this, as during the previous weeks, be about equally distributed over every part.

FOURTH WEEK.

We begin this week with the *club*. Under the heading "*Apparatus for Special Exercise*," the *size* for both men and women were given.

Let it not be forgotten that, in every exercise with the clubs, where it is possible, the right arm performs the feat first, then the left, then the two arms alternately, and last of all simultaneously. In each case the feat is to be executed 5 times.

If you would be deeply interested in the *club* exercises, do everything with the greatest precision. If you hold the club *horizontal*, let it be *exactly* horizontal; if *perpendicular*, *exactly* perpendicular. If you enjoy the advantage of music, let the time for the clubs be very slow.

No. 1. The clubs hang at the sides, each hand

grasping firmly, being careful not to push the index finger toward the body of the club, but keep it close with the rest of the hand. First raise the right arm, as the left is represented in *Fig.* 1, 5 times. Same with the left. Then alternately and simultaneously, each 5 times.

No. 2. Raise the right arm and club, as represented in *Fig.* 1. Left the same, then alternately and simultaneously, each 5 times.

Fig. 1.

No. 3. Holding the right as the left is represented

in *Fig.* 2, carry it directly upward until it is perpendicular. Left the same, etc.

Fig. 2.

No. 4. Holding the right as it is represented in *Fig.* 1, carry it directly upward, sideways, until it is perpendicular. Left the same, etc.

No. 5. Right club should hang by the right leg. Carry it upward directly *in front*, until it is perpendicular over the shoulder. Left the same, etc.

No. 6. Right club hangs by the side of the right leg

Carry it directly upward *sidewise* until perpendicular over the shoulder. Left the same, etc.

No. 7. Hold the two clubs as the left is represented in *Fig.* 2, without moving the arms, but simply by bending the wrist, and with a slow motion lay the right club down on its own arm. As it is carried back, bring the left one down, and then work the two simultaneously.

No. 8. Arms horizontal in front, clubs perpendicular. Now carry the two arms in the horizontal plane, without bending the elbows, backward as far as possible. (*Fig.* 3.) Halting, touch the farther ends of the

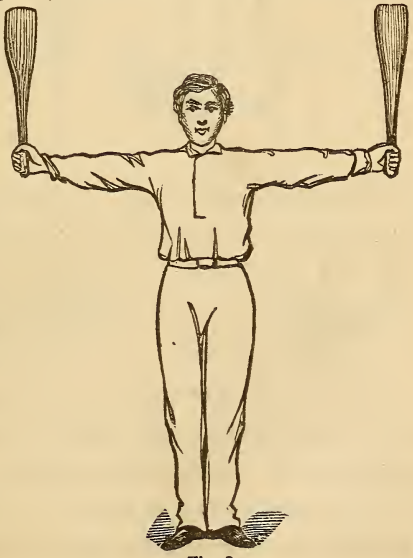


Fig. 3.

clubs on the back of the neck. Carry them out again to the position seen in *Fig.* 3. Now let the farther ends of the clubs touch at the nose. Carry them back again to *Fig.* 3. position. Let them fall backward, so that they hang down vertically, (*Fig.* 4,) but without

Fig. 4.

moving the arms other than with a twisting motion. In this the hands must not be allowed to give way on the handle, but must grasp firmly. To reach this vertical position of the clubs as they fall behind, it is necessary to bend the back considerably. Raise the clubs again to *Fig.* 3 position, and allow them to fall again, but this time forward, and until they reach the vertical position. Thus alternate between the fall backward and forward, 5 times, and end by bringing the clubs to the hanging position by the side of the legs.

No. 9. Hold the clubs as represented in *Fig.* 5. Carry their farther ends directly upward as far as you can reach them, and let them fall behind upon the shoulder blades. Thus alternate 5 times.

No. 10. Beginning with the clubs as seen in *Fig.* 5, but with the other end of the clubs up, thrust the arms upwards and sidewise, as seen in *Fig.* 6, and bringing

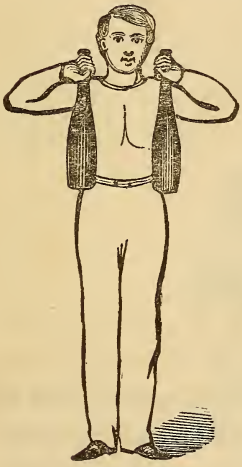


Fig. 5.

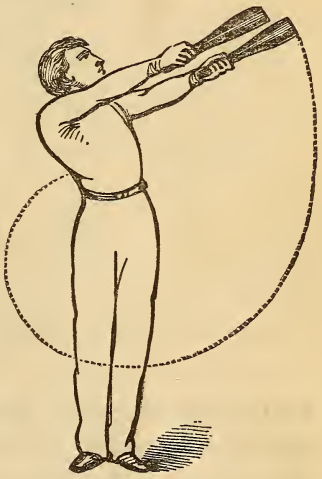


Fig. 6.

them close down by the legs in front, carry them completely around the back, letting them fall down as far as possible, and bring them to the chest, in the beginning position; thrust them up and out on the other

side of the body, and carry them around the body the other way. Alternate 5 times.

No. 11. Holding the clubs as represented in *Fig.* 7, one exactly in front, the other behind, and

Fig. 7.

both horizontal; carry them directly upward, and as they pass each other over the head they should be not more than one foot apart. Upon reaching the horizontal, the clubs, as will be seen, are exactly reversed. Be careful in this exercise not to bend the elbows or wrists.

No. 12. Holding the body, arms, and clubs, as seen

in *Fig.* 8, reverse the arms 5 times. If elbows or wrists be bent the exercise is lost.

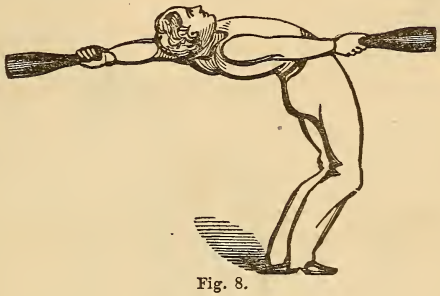


Fig. 8.

No. 13. Your assistant presses hard on your shoulders while you are sitting down, slowly *(Fig.* 9), and until you rise again to the standing position, 5 times.

Figure 9.

No. 14. Step over the wand, backward and forward, with each foot, 3 times, holding the wand in the hands. (*Fig.* 10.)

Fig. 10.

No. 15. Swing the foot and body, as shown in the dotted lines (*Fig.* 11), ten times. Give each foot the same exercise.

No. 16. Circle the shoulder, as seen in the dotted lines (*Fig.* 12), allowing the arms to hang by the side. First one shoulder, then the other, then alternately and simultaneously, 5 times. It is well to make the circle in both ways.

No. 17. Circle the head and shoulders, as seen in the dotted line (*Fig.* 13), 5 times each way.

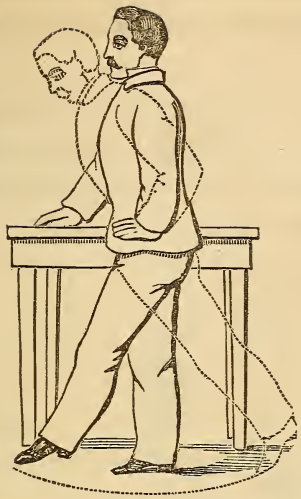


Figure 11.

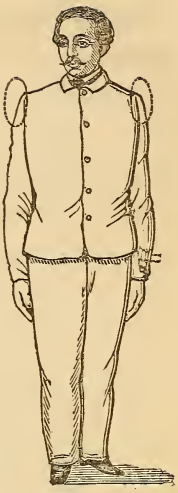


Figure 12.

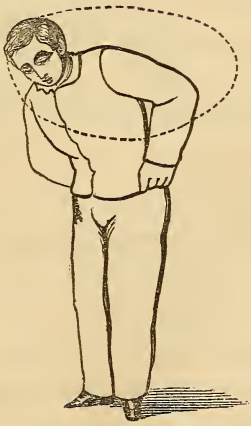


Figure 13.

No. 18. Perform the exercise indicated in *Fig.* 14, 5 times with one foot forward, and the same with the other.

As before, conclude each day's exercise with percussion. Direct your assistant to percuss your back, abdomen and chest, thoroughly. It is less necessary now to percuss the limbs.

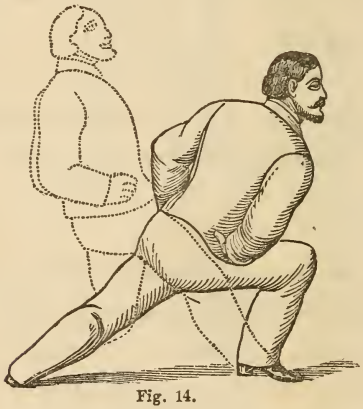


Fig. 14.

FIFTH WEEK.

You have been at work four weeks. You are much improved. I am sure of this if you have followed the directions; especially those which refer to the *manner*

of performing the exercises. The rules which I gave in introducing these exercises, some pages back, are all important; but those in which I caution you against hurry and fatigue deserve your particular attention.

I shall give you no new exercises for the fifth week, but instead, will advise you to select from those which you have performed during the last four weeks, such as have proved most pleasant to you, and such as you are conscious, touch your weak places.

You must work with deliberation, and stop short of fatigue. That hurry which makes you pant for breath is very unwise. The processes of growth are slow, and you might as well study books until your brain is aching and inflamed with the hope of strengthening your mind, as to work your muscles until they are fatigued and sore with the hope of improving the body.

You cannot be too careful about taking cold after your exercise. You should at once dress warmly, and lie down for an hour or two. I repeat, that such rest afterward will double the benefit of the work.

I hope you find it convenient to take your regular work about the middle of the forenoon. I told you in the beginning, if this is not convenient, the next best time is early in the morning, and the next best time is about seven or eight o'clock in the evening.

SIXTH WEEK.

If you are in earnest, you have obtained a *Pangymnastikon*, either by sending to me for it, or by making one yourself. It is a most important piece of apparatus, and with a good Spirometer makes almost a complete gymnasium. To every one in your house this German invention will furnish good means for general muscle-culture.

If you have studied the Pangymnastikon, you have observed that the hand-rings can be raised or lowered to any desired height. So you may use it for a swing, suspending yourself by your hands. This is a most invaluable exercise for persons with drooping shoulders. For at least a hundred years past, eminent medical men have, from time to time, spoken of the happy influence of swinging (suspended by the hands) upon drooping, weak chests. In the beginning of consumption it is invaluable.

I have told you that the *Pangymnastikon* affords opportunity for 107 exercises. In my former work, "*New Gymnastics*," by Ticknor and Fields, the 107 cuts illustrating these exercises all appear. I select for this work a few of those which are of peculiar value to consumptives.

No. 1. Shoulder Swing, *forward and backward, four, six, or eight times.*

Rings at the height of the head. The swing motion is obtained by springing from the floor, and a continued effort of the legs. (*Fig.* 1.)

Figure 1.

No. 2. Elbow Swing, *forward and backward, four eight, or twelve times.*

Rings high enough for the body to hang straight,

the body being supported by the elbows. (*Fig.* 2.) Swing the same as in *Fig.* 1.

No. 3. Hand Swing, *forward and backward, four eight, or twelve times.*

Rings so high that the feet will not touch in swinging; with the arms straight. (*Fig.* 3.)

Figure 2.

Figure 3.

No. 4. Hand Swing Sidewise, *four, eight, or twelve times.*

Rings same as in the last. The swinging which is sidewise, is carried on by efforts of the legs and arms. This exercise operates happily by enlarging the chest. (*Fig.* 4.)

Figure 4.

No. 5. Standing Inclination, *forward and backward, two, four, or eight times.*

Rings as high as the chest. Seize the rings as shown in the cut. The feet remain at one place, simply turning on the toes as the person falls forward, and on the heels as he falls backward. In falling forward it is well, for beginners especially, to keep the arms in the attitude seen in the cut. (*Fig.* 5.) The legs must not be bent.

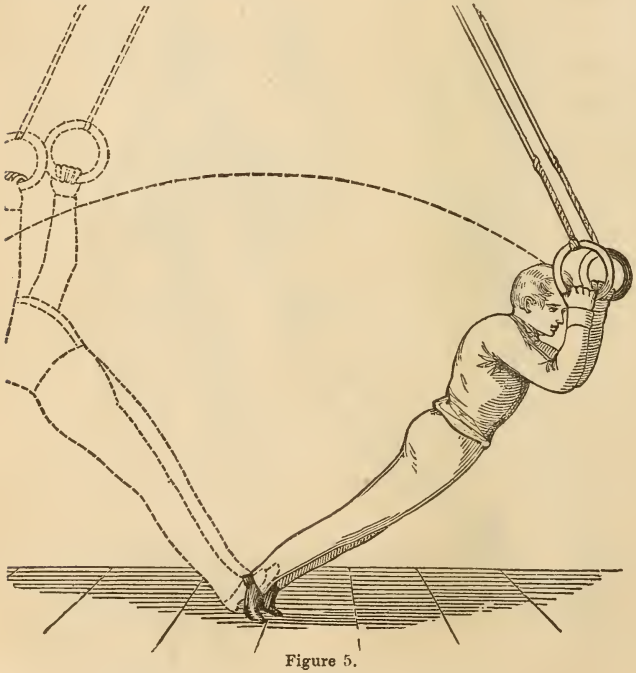


Figure 5.

No. 6. Tunnel Circling *with Hand Grasp, two, four, or six times.*

Rings at the height of the shoulder. The rings being taken in the hands, the circle is larger and the muscular exertion greater. The lower the rings are placed, the greater will be the muscular exertion. The body must not be allowed to turn upon its axis. The arms must be kept bent just as seen in the cut, except at the extreme backward inclination, where they may be allowed to stretch out at their full length for a moment. As in all other similar exercises, the circling must be the same number of times each way. (*Fig.* 6.)

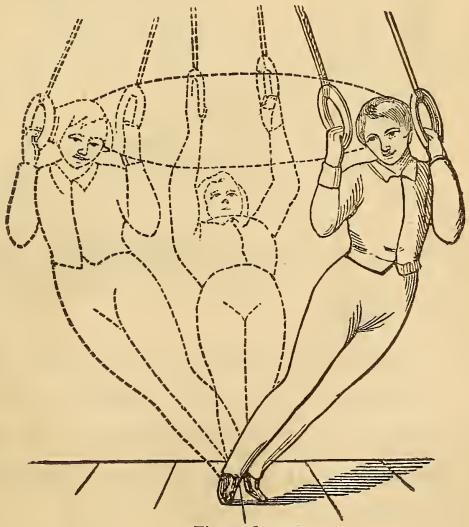


Figure 6.

This exercise is a particularly valuable one, and may be done every day for months. No possible exercise will do more to break up all rigidity in the intercostal muscles, and thus produce a free action of the ribs.

No. 7. Your assistant takes your thigh on his knee, and bends the leg down as seen in the dotted line; (*Fig.* 7) you resist. Each leg 5 times.

Figure 7.

No. 8. Lock your hands on the back of your head. Sit upright. (*Fig.* 8.) Assistant seizes you by the elbows, and twists you from side to side, 5 times; you resist. It is well to have straps nailed on the floor, under which you push your toes.

No. 9. Hold up one arm perpendicular over the shoulder. Assistant seizes it. (*Fig.* 9.) You draw your fist down to your shoulder; assistant resists. Now force it back; assistant resists; 5 times each arm.

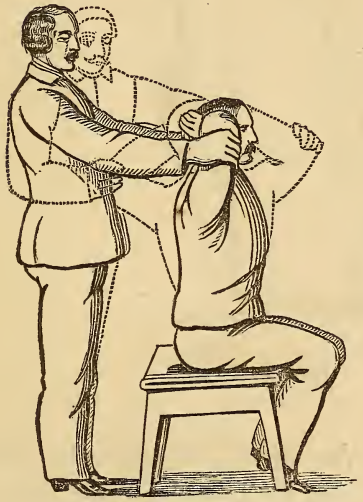


Figure 8.

Figure 9.

No. 10. Keeping your arm in the same position, turn the forearm down to the position of the dotted

lines; (*Fig.* 10,) assistant resists. Force it back to the place of beginning; assistant resists. Each arm 5 times.

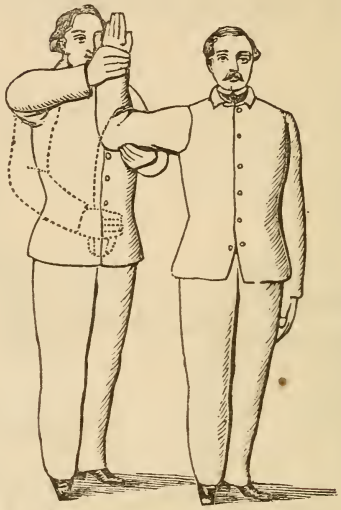


Figure 10.

No. 11. Holding your arm in the horizontal position, assistant will force your hand up and down; (*Fig.* 11,) you resist. Now he will force it sideways; you resist. Each hand, both ways, 3 times.

No. 12. Assistant will force your head and shoulders around in a circle; (*Fig.* 12,) you resist. Each way, 5 times.

Figure 11.

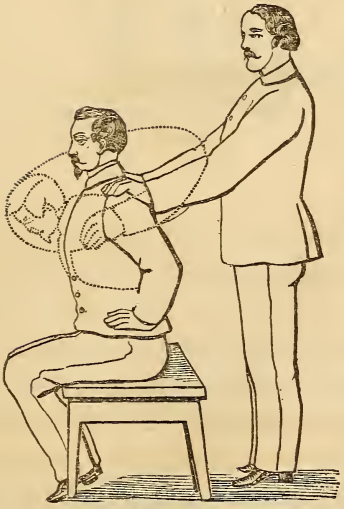


Figure 12.

No. 13. Assistant twists the arm in the shape of a tunnel; (*Fig.* 13,) you resist. Each arm, both ways, 5 times.

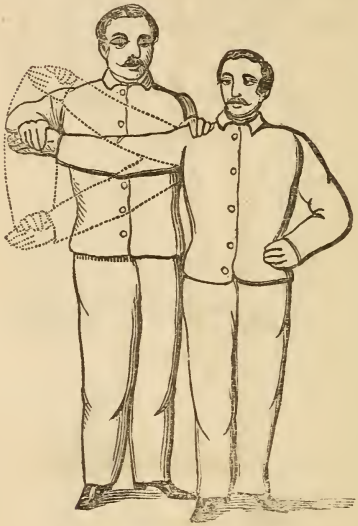


Figure 13.

No. 14. Raise your arms perpendicular over the shoulders; assistant seizes by the wrists; he forces you from side to side, (*Fig.* 14,) while you keep your arms in the same relations with your head. Each way 3 times. In this exercise you will be obliged to keep your toes under the straps.

Have the exercises for the sixth week closed every

day by a thorough percussion over every part of the body.

Figure 14.

SEVENTH WEEK.

We now enter the last half of the second month. If you have been a faithful pupil, you are much better. Of course, if you are in earnest, you have read the first part of this work, in which ventilation, sunshine,

dress, diet, etc., are discussed; and you have faithfully regarded the advice there given. If you neglect all these vital laws of health, exercising an hour each day will not cure you. "Ah," you say, "but am I to give up all my time to repairing my health?" Certainly you must, if it is necessary, but then you overrate the trouble which all this attention to air, food, bathing, &c., will give you. I do, in the most thorough manner, every day, all that I ask you to do, and it does not occupy my attention ten minutes. I trust you are not one of the slaves of appetite and indolence, willing to sacrifice every thing for momentary gratification, and nothing for your higher nature and permanent good.

Presuming that you are sincere and hearty in your efforts to recover your health, I will go on. If this series is too long, all you have to do is to stop before you get tired.

And, first, a few more dumb-bell exercises.

No. 1. Charge diagonally forward, rising on the toe behind, and reaching forward as far as possible, (*Fig.* 1,) thrust the dumb-bells alternately forward, as far as you can reach, 5 times. Simultaneously the same number of times both sides.

Fig. 1.

No. 2. After stamping, the pupil should charge in the manner illustrated in *Fig.* 2. Sink 5 times. Same on the left side. In this, as in *Fig.* 1, the charging is exactly sideways.

Figure 2.

No. 3. Assuming the position seen in *Fig.* 3, force back the right arm, as seen in the dotted line, 5 times. Left the same. Alternately and simultaneously, 5 times. The arm must not be bent at the elbow.

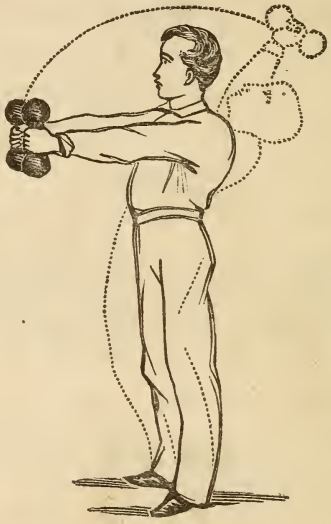


Fig. 3.

No. 4. Having the arms extended at the sides, as shown in *Fig.* 4, raise the right arm to the position seen in the dotted line, 5 times. Left the same. Alternately and simultaneously, 5 times.

No. 5. As in nearly all other exercises, begin with the heels together, body erect, chest forward, shoulders back, arms hanging, dumb-bells horizontal and parallel to each other. Step diagonally backward with the right foot, as seen in *Fig.* 5, and thrust the arms up alternately and simultaneously, 5 times.

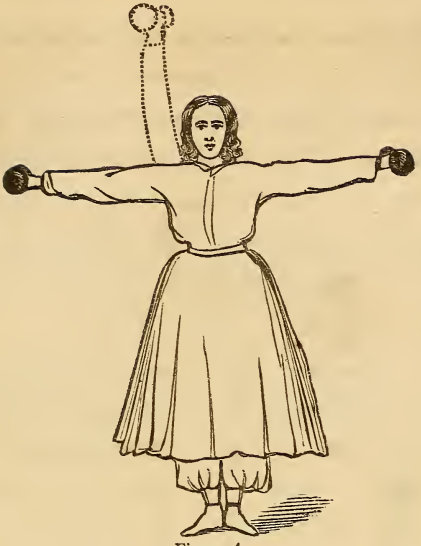


Figure 4.

Figure 5.

In this exercise the forward leg is kept straight, that behind is bent as much as possible.

No. 6. Standing erect, arms hanging, bring the bells to the chest, then to the floor, as shown in the dotted line in *Fig.* 6; then rising, bring the dumb bells again to the chest, and on the next beat thrust them as far upward as possible, rising on the toes; then back to the chest. *Repeat* 5 *times.*

No. 7. Standing erect, arms hanging, carry the arms to the horizontal in front; then to the position over the head seen in *Fig.* 7; now down to the hori-

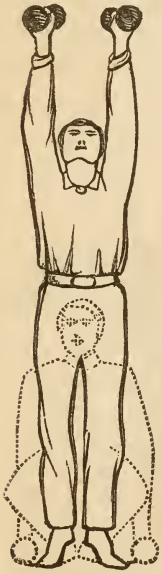


Figure 6.

Figure 7.

zontal again, and then to the floor as seen in the dotted line. *Repeat* 5 *times.*

In this exercise there must be no bending at the knees or elbows.

No. 8. Chest Stretched Position, *during two, four, or six inhalations.*

Rings one foot from the floor. Grasp from the outside, as shown in the cut, arms exactly perpendicular. Legs straight, supported on the points of the toes. The rope must touch the shoulder. One hand can be lifted, and the weight of the body supported by one hand, though this exercise belongs to the second series. (*Fig.* 8.)

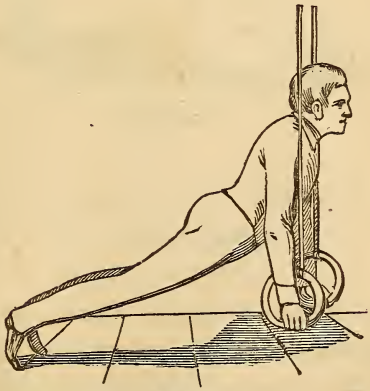


Figure 8.

No. 9. Side Stretch Position. *During two, four, or six inhalations.*

Ring still one foot from the floor. The hand seizes the ring on the outside with the spoke grasp, the rope touching the front of the shoulder. Arm exactly perpendicular. Body otherwise just as represented. (*Fig.* 9.)

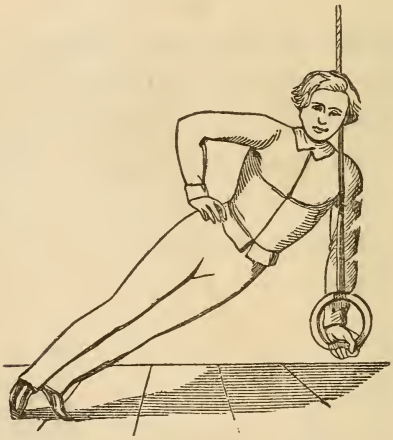


Figure 9.

No. 10. Support Hang, *during two, four, or six inhalations.*

Rings as high as the breast. Hands take hold from the outside with the support grasp. With a little spring the body can be lifted into the position seen in

the cut. Beginners, with but little muscle, had better hang the rings no higher than the abdomen. Back straight and rigid. Chest arched forward. Feet locked. Body held still. (*Fig.* 10.)

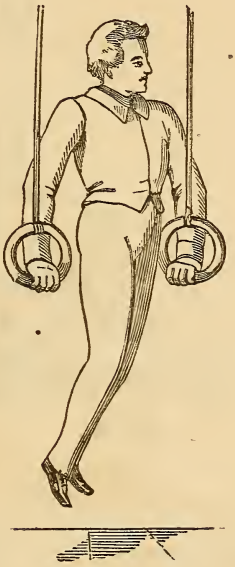


Fig. 10.

No. 11. SIDE HANGING, *with bending of the Hips, two, four, or six times.*

Height of the ring and position of the two arms, the feet and the hips, are well shown. The hips are

drawn upward and allowed to fall, as suggested in the dotted line. (*Fig.* 11.)

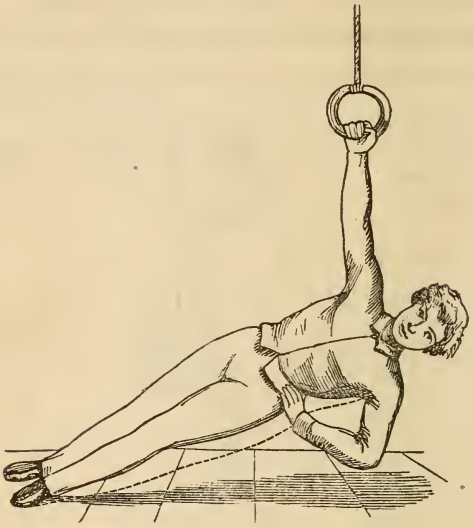


Figure 11.

No. 12. Perpendicular Foot Bending and Stretching, *from the Shoulder Hang, eight, twelve, or sixteen times.*

Rings as high as the head. Place the arms firmly in position and hold the body still. Toes are stretched down as near the floor as possible, and drawn up near the ankle. (*Fig.* 12.)

No. 13. Leg Twisting, *from the Shoulder Hang, eight, twelve, or sixteen times.*

Position same as in the last. Turn the toes slowly and vigorously outward and inward. (*Fig.* 13.)

Figure 12.

Figure 13.

No. 14. Horizontal Leg Raising, *from the Shoulder Hang, two, four, or six times.*

Rings, hands, and body in the same position as in

Fig. 14. The legs are kept perfectly straight, and they are raised as shown in the figure where they are held for a moment.

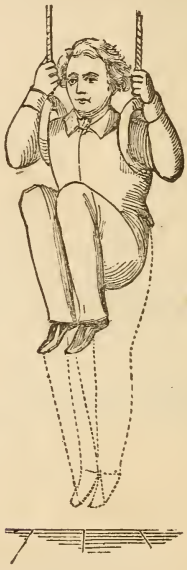


Fig. 14.

No. 15. Suspension *from Spread Arms, six, eight, or ten inhalations.*

Rings sidewise, high enough to suspend the body from them. Head erect; back straight; legs straight and close together; feet at right angles. *(Fig.* 15.*)*

Fig. 15.

No. 16. Swinging in Stirrups, *four, eight, or twelve times.*

Rings as high as the waist or chest. Support grasp

from the inside. Swing as upon any ordinary swing, when standing. (*Fig.* 16.)

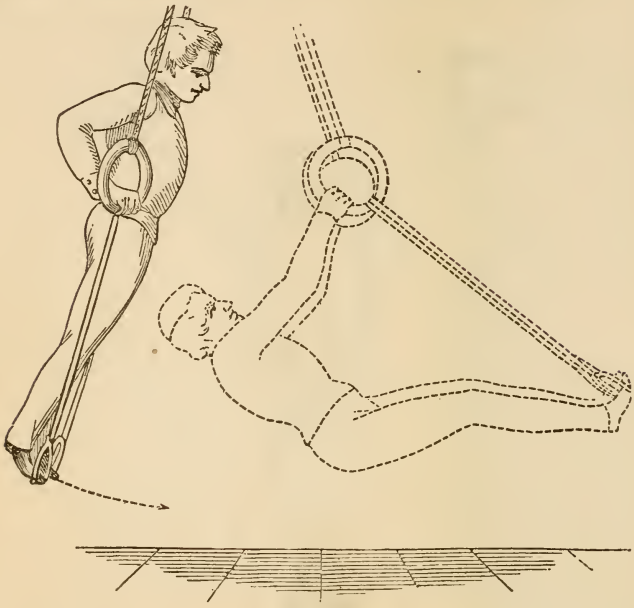


Fig. 16.

No. 17. Placing your hands on your sides, press your elbows as near together (*Fig.* 17) behind as you can 10 times.

No. 18. Separating the feet as shown in *Fig.* 18, touch the floor 5 times without bending the knees. In carrying the arms upward reach them every time as high over the head as you can.

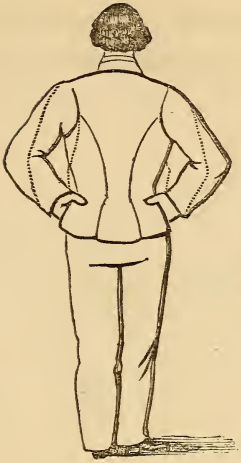


Figure 17.

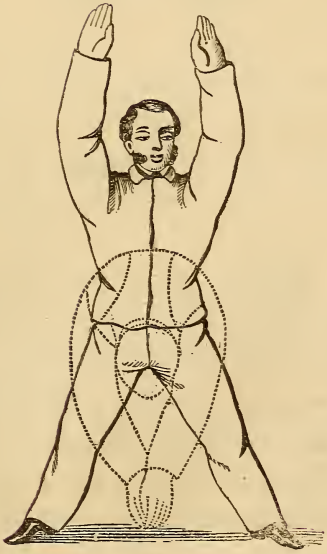


Figure 18.

No. 19. Swing the right arm in a large circle. Then the left. Then alternately and simultaneously. Each 5 times. (*Fig.* 19.)

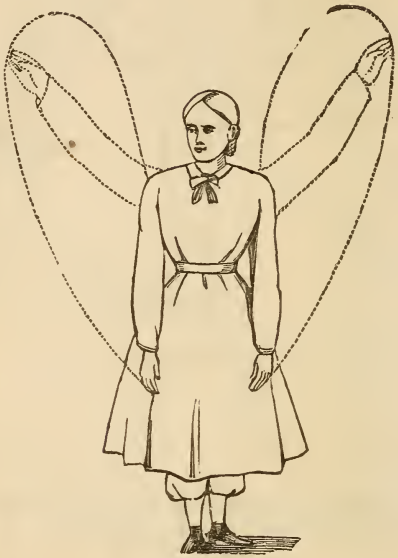


Figure 19.

No. 20. Support yourself thus (*Fig.* 20.) upon two chairs or stools, while you are counting fifty.

This may be ended like the exercises of the last week, with vigorous percussion over every part of the person. Have the blows directed, in considerable part, to the chest, both behind and in front.

If there is a tender place about the chest, have

many blows hit that place. And if the soreness be not produced by tubercle or lesion within, the percussion will soon remove it.

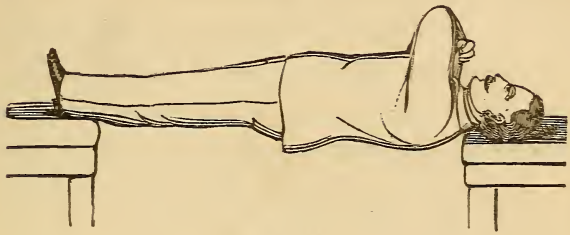


Figure 20.

EIGHTH WEEK.

As I advised you before, the spirometer should be used just before beginning the other exercises. I know of nothing which so completely opens the air-cells, and prepares the lungs for those full inspirations which are so important in the subsequent exercises. A very good substitute for the spirometer, though by no means equal to it, is the practice of standing by the open window, or out in the open air, and taking several deep inspirations.

No. 1. Back to back, touching each other's heels. Each lunges out in the direction the toe points, the feet being at right angles, and raises the hands over the

head so they touch, thus reaching the position seen in *Fig.* 1. Now back, heels together, arms at the side, lunge out with the left feet in the same way, and thus alternate, keeping time to the music.

No. 2. Standing as represented in *Fig.* 2, your partner the same, with the inside of his left foot to the inside of your left foot, and holding the rings as shown in the figure, push them vigorously toward your partner, simultaneously thrusting them past his body as far as possible. He pushes them back in the same manner, and so on.

Figure 1.

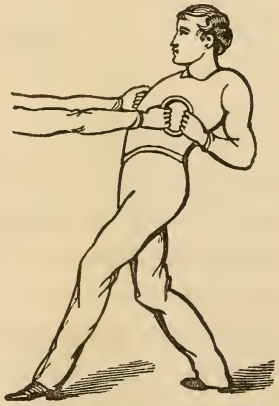


Figure 2.

No. 3. Same as the last, except the right foot is pushed forward, instead of the left.

No. 4. Stand back to back, heels all together;

both step out sidewise in the same direction as far as you can reach, and at the same instant raise the hands on the same side as high as you can, then returning to the upright position, hands by your sides, charge out at the other side in a similar manner. When this has been done both ways, as in every other exercise, 10 times, you continue to charge sideways as before, only in opposite directions as represented in *Fig.* 3.

Figure 3.

No. 4. Standing face to face, two feet apart, charge sideways as in the last exercise, and as seen in

Fig. 4. In alternation with this, charge the opposite way. After the regular number of times, you charge out sideways with your right feet in opposite ways, as seen in *Fig.* 5; alternate with the left feet.

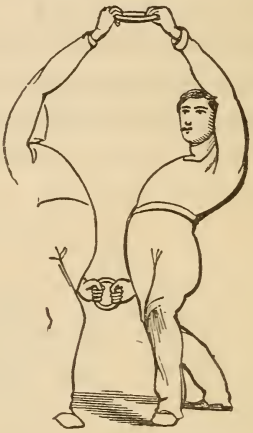


Figure 4.

Figure 5.

No. 5. Joining only with your right hands, and standing apart far enough to make the arms straight and horizontal between you, charge as seen in *Fig.* 6; the left hand and foot the same.

No. 6. Stand, each with his own heels together, as seen in *Fig.* 7, and perform the exercise exhibited in the figure. As the hands on one side go up, the hands on the other go down. So alternate the regular number of times, when you will do the same simultaneously, the hands on both sides rising and falling together.

Figure 6.

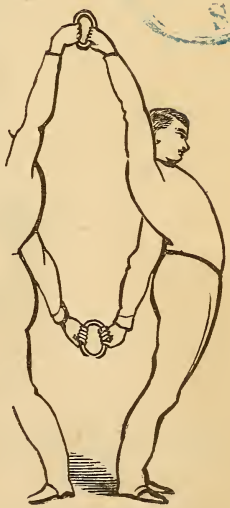


Figure 7.

No. 7. Stirrup Standing Inclination, *in the Elbow Hang, four six, or eight times.*

Standing in the stirrups, the rings are placed as high as the shoulder. Arms as seen in the cut. The body is thrown vigorously forward and backward. (*Fig.* 8.)

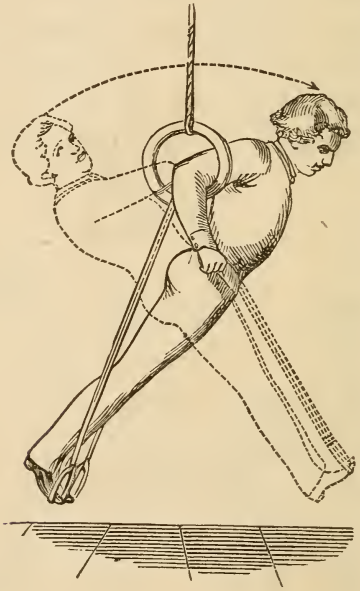


Figure 8.

No. 8 Sitting Down in the Stirrups, *two, four, or six times.*

Standing in the stirrups, the rings are placed as

high as the waist. Now sit down so as to touch the heels. In rising, use the legs alone, simply employing the arms to steady the body. (*Fig.* 9)

Figure 9.

No. 9. Chest Expanding, with Letting Down, *two, four, or six times.*

Rings at the lowest point. Arms perpendicular. Body straight; supported at the feet on the points of the toes, and with the hands seizing the rings as seen

in the cut. Bend the elbows and let the body down slowly. Raise it again slowly. The arms do nearly all the labor. (*Fig.* 10.)

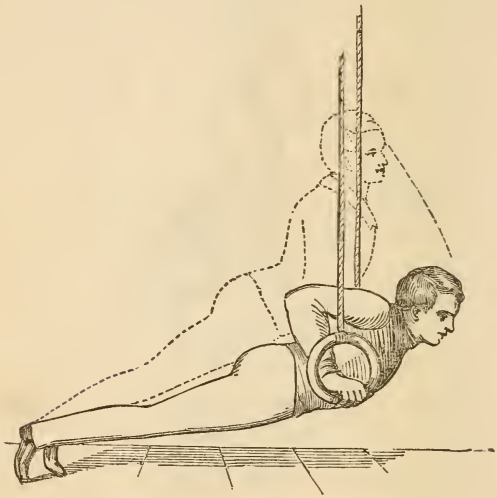


Figure 10.

No. 10. Half Lying, with Lifting by the Arms, *two*, *three*, *or four times*.

Rings as high as the chest. Seize the rings from the outside with the support grasp, and bring the body beneath the rings in an almost lying down position. Keep the body and neck in a straight line rigidly.

Now draw the chest up to the rings, and let the body down again to the full length of the arms. (*Fig.* 11.)

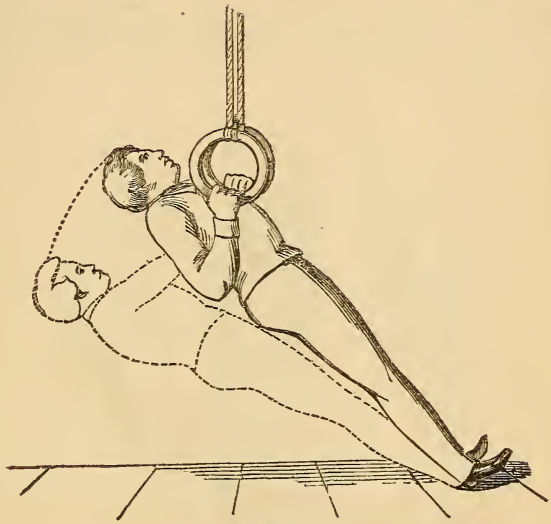


Fig. 11.

No. 11. Chest Expanding, *two, four, or six times.*

Rings as high as the chest. Adjust the stirrup straps so that when the rings are held out at arms length from the body, the stirrups will touch the floor. Put the feet into the stirrups as far as the heels. Take hold of the rings with the support grasp from the inside. Stretch out the arms in front of the body,

and then, keeping the arms straight, carry them backward as far as possible. As soon as the straps are drawn tightly, the feet begin to offer a point of resistance, which may be increased to any desired degree. The body remains firm with heels upon the ground. (*Fig.* 12.)

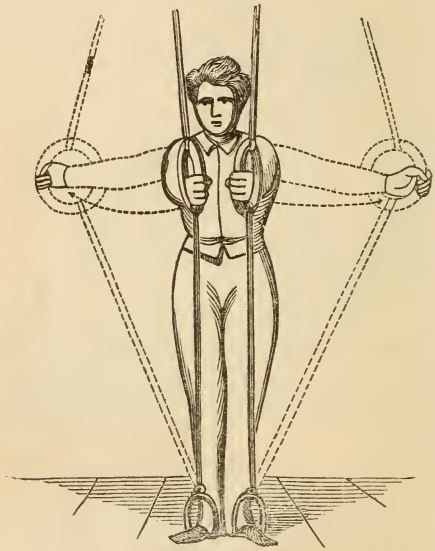


Fig. 12.

No. 12. Nape Bracing Position, *during two, four, or six inhalations.*

The rings are placed at their lowest position, or

within a foot of the floor. A strip of wood is placed in the rings, and upon it some soft object like a cushion or shawl. The back part of the head is laid upon the cushion, and the heels touch the floor. The body is arched upward and held in that position. (*Fig.* 13.)

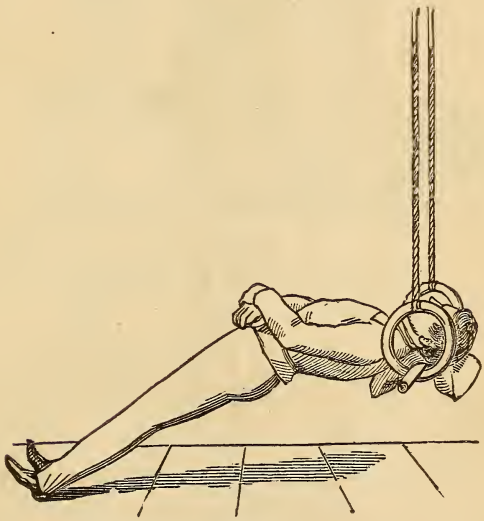


Fig. 13.

No. 13. Lie down on a settee, as shown in *Fig.* 14; your assistant seizing your legs will force them down as seen in the dotted lines. You resist. Repeat 5 times.

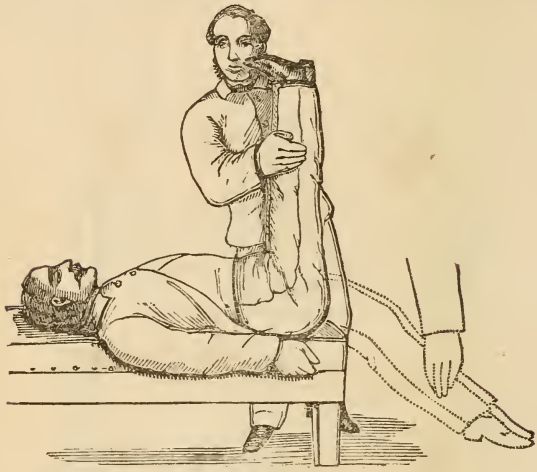


Fig. 14.

No. 14. Have something to raise your head and shoulders. Assistant will seize your leg, as seen in *Fig.* 15, and move your knee in a circle, both ways, 5 times, as seen in the dotted line. Each leg must receive the same. In this exercise you do *not* resist.

No. 15. With your head and shoulders still raised, as in the last, hold your arms perpendicular over your head. (*Fig.* 16.) Assistant will take hold of your

wrists, and carry your arms directly outward as in the dotted lines; you resist. Then he brings them back again; you resist. Repeat 5 times.

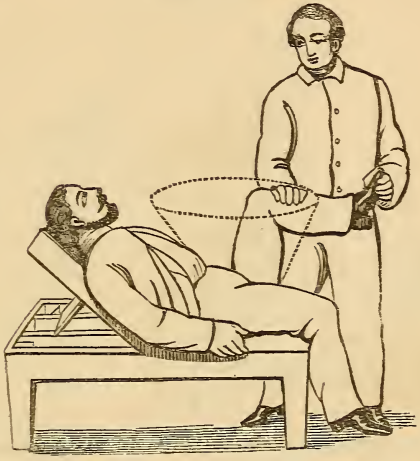


Figure 15.

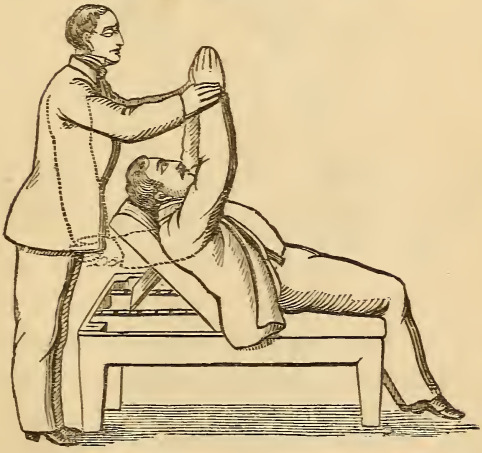


Figure 16.

No. 16. Holding your feet together, your assistant will make a large circle with them; (*Fig.* 17,) you resist; both ways, 5 times.

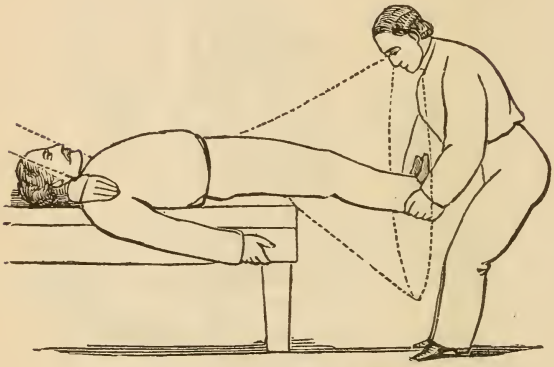


Fig. 17.

No. 17. Seizing a pole overhead, your assistant will make a large circle with your hips, both ways, 3 times. (*Fig.* 18.) You do *not* resist.

No. 18. Standing as indicated in the cut, (*Fig.* 19,) your assistant pushes your hips forward as far as possible, 5 times. You resist.

Fig. 18.

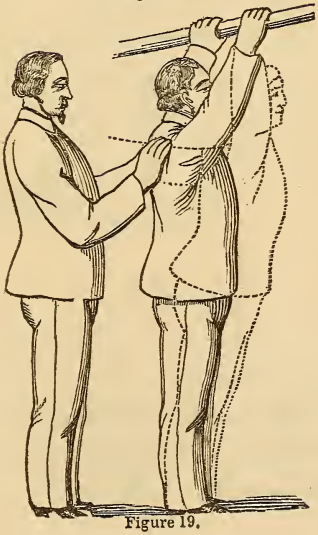


Figure 19.

No. 19. Raising your arms to the perpendicular, as in *Fig.* 20, your assistant seizes your wrists, and forces your arms out to the horizontal, 5 times; you resist. Each time, as the arms are brought back to the perpendicular, you resist. You must not bend the elbows.

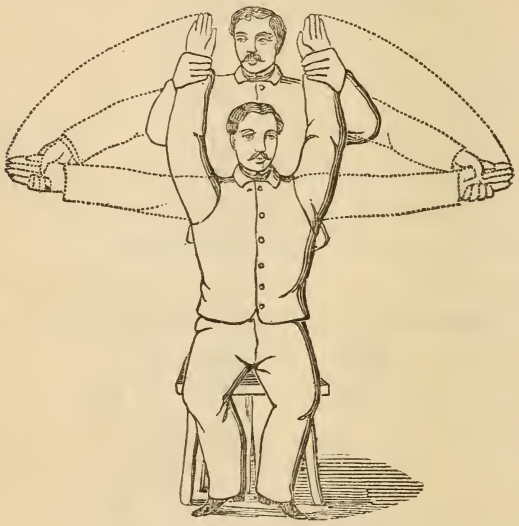


Fig. 20.

As usual, close the exercise by vigorous percussion over every part of the body. This percussion may be used now at any time in the course of the exercises, while you are resting. Indeed this practice is admissible at almost any time.

NINTH WEEK.

I shall give you no new exercises for this week. You have now had a good deal of experience, and it is quite right to leave much to your judgment. You have learned which exercises affect you most pleasantly. I commend to your attention those with the Pangymnastikon, and especially those in which you are suspended by the arms.

Select from the previous exercises such as you please for this week, and be careful, only, that you do not fatigue yourself.

I think now it will be proper for you to exercise twice a day; say in the forenoon, and again the evening, before you go to bed. But this point you must decide in view of your strength. If there are evidences of fatigue, you had better exercise but once a day.

TENTH WEEEK.

Most consumptive invalids are indisposed to exercise, and particularly indisposed to employ their arms. Many attempt training of the shoulders and chest, and

abandon it in disgust. But if in the systematic performance of the exercises other persons are interested, the patient cannot withdraw. Besides, those exercises in which others participate have social attractions, to which consumptives, as a class, are peculiarly susceptible.

For example, a consumptive young lady has brothers who assist her in certain prescribed exercises. These are to be executed twice a day, at hours when the brothers are at home. There is an affectionate interest in the group with reference to the pleasant duty. It is not forgotten. Suppose the brother is the patient, the sisters or mother will act as assistants. In every family such exercises are sure of the proper attention. I need scarcely say, that, if the patient undertake to exercise alone, with dumb-bells, or some similar means, it will soon grow tiresome, and be abandoned.

Moreover, it is a matter of no small moment that other members of the family—who are not unlikely to be predisposed to the same malady—will thus secure a series of profitable exercises. I must add my conviction, that by no other variety of training can the efforts be so accurately directed to the muscles whose weakness permits the distortion of chest which is often the exciting cause of the malady.

With a good sized room, and open windows, the air

may be pure, while the exercise will prove the occasion of a thorough ventilation of the house.

I am indebted to Friedrich Robert Nitzsche, of Dresden, for the drawings of the accompanying cuts. His works are invaluable.

No. 1. Bend, as shown in *Fig.* 1, 5 times. It is best to do this exercise quite deliberately. Indeed, this rule is applicable to nearly all exercises.

No. 2. Locking the hands on the lower part of the back, thrust them backward, as shown in dotted lines, (*Fig.* 2,) 10 times.

Figure 1.

Figure 2.

Figure 3.

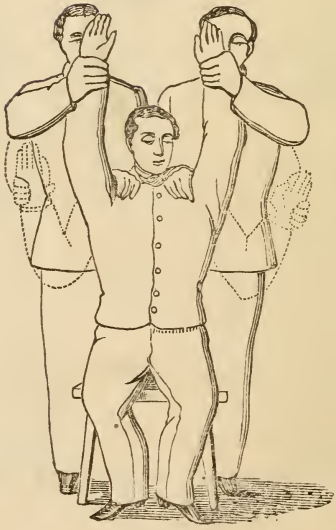


Fig. 4.

No. 3. The exercise illustrated in *Fig.* 3 needs no description. I will only say, that the arms must not be bent at the elbows. Repeat 5 times.

No. 4. Draw your arms down, as indicated in the dotted lines (*Fig.* 4); assistants resist. Now force them upward; assistants resist. Repeat 5 times.

No. 5. This one (*Fig.* 5) may be done twenty times, or even more, very deliberately. It is very pleasant, and a capital exercise.

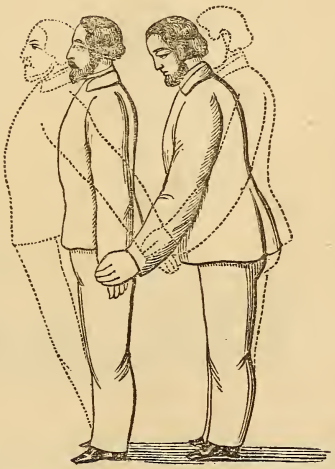


Fig. 5.

No. 6. Drawing up with the Spread Out Grasp, *one, two, or three times.*

Position as in *Fig.* 6. Then raise the body as high as possible with the arms, keeping the body straight between the two rings. Motions very slow.

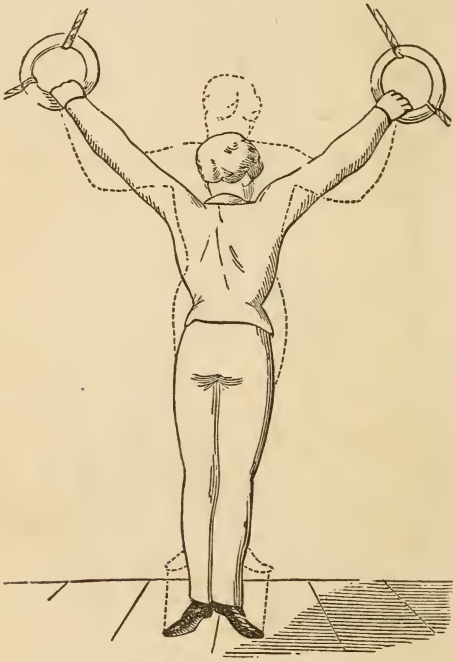


Fig. 6.

No. 7. Spread Out Hang with Drawing Together of the Legs, *three, four, or five times.*

The rings are fixed by the side ropes at head height.

The stirrups are at a length which permits the legs to take a fall, though not an exaggerated spread-apart position. Each hand grasps a ring, each foot is placed in a stirrup. The feet are then drawn together until the heels touch, as shown in the dotted line, *Fig.* 7.

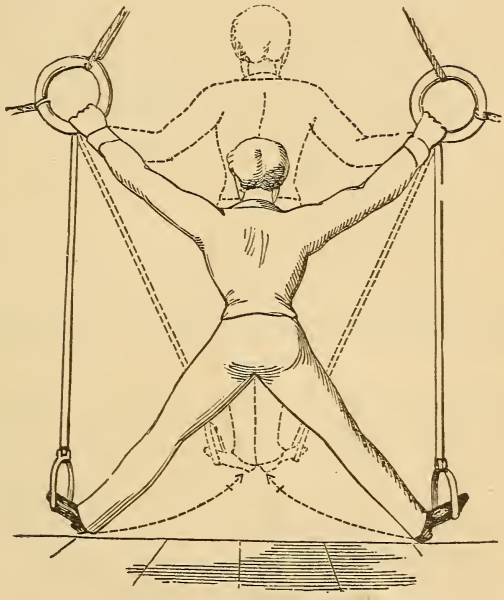


Figure 7.

At this time you may use percussion at your pleasure. You can hardly over-do this kind of treatment, so long as the blows are not painful. I have no fear you will hurt yourself after ten weeks experience.

I leave you, after enjoying the honor of acting as your guide for ten weeks. I trust they have proved weeks of pleasure and profit to you.

You should continue to exercise regularly; but now I leave you to prescribe for yourself. You will not be likely to make any mistake, except to suppose that you are well enough, and need not work any more. Do not fall into this common blunder. Set apart, at least, one hour every day for this important duty.

TO PERSONS WITH WEAK CHESTS.

I shall be happy to advise with you. My office hours are from 10 to 12 A. M. If you reside far from Boston, I may assist you by correspondence. In writing me, you should answer the following questions:—Is your family consumptive? What is your age? What is your occupation? Have you drooping shoulders? What is the number of your pulse in the morning? How is your digestion? What does the physician say of the actual condition of your lungs?

Dio Lewis, M. D.,
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It is believed that parents who have children of delicate constitutions, will read this announcement with profound satisfaction.

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